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□ PURPOSE

Indian Educational Review is published quarterly in January, April, July and October, by the National Council of Educational Research and Training, New Delhi. The purpose of this journal is to provide a medium for dissemination of educational research and exchange of experience among research workers, scholars, teachers and others interested in educational research and related fields and professions.

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□ CONTRIBUTIONS

Indian Educational Review invites papers on or pertaining to educational research with emphasis on research problems in Indian education. The editors entertain the following types of material :

1. Papers that contain original thinking in education or educational research.
2. Papers that make a significant contribution towards developing a theory.
3. Papers that summarize and discuss an outstanding study or a place of educational research.
4. Papers that review significant research in important areas.
5. Letters to the Editor on important research problems.

The emphasis is on categories 2, 3, 4 and 5. Ordinarily, a paper is not accepted if it has appeared in print or in any form elsewhere. Exceptions may be made for contributions which the General Editor

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Why Isn't Educational Research More Useful ?

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THAT OUR EDUCATIONAL SYSTEMS are beset with enormous challenges is surely an understatement. The problems of creating prodigious educational expansion of the 1960s have continued in the Third World and have been joined by the problems of educational inequality and surpluses of educated persons in the industrialized societies. Questions have been raised about the methods of educational finance, the structure and organization of education, curriculum and teacher preparation, and in recent years there have even been challenges to the view that the schools can be used as an instrument of social change and equality.

In response to these dilemmas, many nations have initiated ambitious programmes of educational research and evaluation to assist in formulating educational policy. These programmes have focussed on practical matters of curriculum construction, educational reform, teacher training, and use of educational technologies as well as the more general issues of ascertaining how youngsters learn the effects of education on income and occupational status, the determinants of educational achievement and so on. National institutes have been created to coordinate and finance educational research and evaluation, and there has been an explicit expectation that a systematic and competent set of investigations can provide useful insights for addressing educational needs and problems.

To support this explosion of interest in educational research and evaluation, virtually all of the societies of both the developed and developing world have also instituted programmes for training educational researchers. The traditional study of pedagogy has yielded to increasing input from such disciplines as psychology, sociology, anthropology, economics, political science and statistics in the search for methodologies that will be useful for educational inquiry. A strong role in promoting these acti-

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vities has been played by such international agencies as Unesco, the Organization for Economic Cooperation and Development (OECD), the International Institute of Educational Planning (IIEP), the Council of Europe, the International Bank for Reconstruction and Development or World Bank (IBRD), the Organization of American States (OAS), and many private foundations. These agencies have sponsored research and training projects for preparing research personnel and carrying out investigations, and they have sponsored conferences and publications for discussion and dissemination of research ideas and findings.

In addition, a number of large international research projects have been initiated by these agencies in order to compare results among countries. These projects have addressed such policy issues as post-secondary education, the comprehensive secondary school, educational finance, and lifelong or recurrent education. Perhaps the most ambitious of these activities has been the international evaluation of educational achievement carried out by the International Education Association (IEA) under the leadership of the Swedish psychologist, Torsten Husen. This particular set of studies examined the determinants of achievement in mathematics, science, foreign languages, reading literature, and civic education among some twenty-one countries. To indicate the magnitude of this undertaking, the more recent phases obtained data from nineteen countries using fourteen different languages for 9,700 schools, 50,000 teachers and 258,000 students. Nine major volumes of research findings were produced from the analyses of these data on such matters as the relative importance of family background and school factors on academic achievement for the countries that were surveyed.

Yet, with all of these developments and some notable triumphs the initial optimism accompanying the expansion and improvement of educational research is beginning to be accompanied by a rising scepticism on the part of policy-makers. Indications of this scepticism are reflected in such factors as the 'push' to make educational research more practical, on the basis that it does not address the most important policy questions as well as the demands for more prescriptive answers from the researchers on major educational dilemmas. Perhaps even more to the point, educational research is having an increasingly difficult time in obtaining government and foundation funds in competition with other government services. In the United States, the National Institute of Education has been unable to obtain increases in funding appropriations from the Congress that would compensate even for rising price levels.

It appears, then, that educational research may be entering a phase in which it may be confronted with demands for justifying its existence. At

least one question that is likely to arise is : Why isn't educational research more useful in solving policy issues ? The casual response to that question might be that educational research will become more useful as its volume and quality rise. Improvements in the quality and volume of educational research are linked, in turn, to the expansion of funding, training of researchers, and research activity. But, in this article I will assert that the problem of 'usefulness' of educational research will be a continuing one no matter what the quality or level of research endeavour. Rather, the problem of usefulness is one that derives from differences in the contexts and methods that characterize the research and policy functions. Some of these differences will be described, and their consequences will be analysed.

Educational Policy

By educational policy I refer to the formation of the direction of the educational system as well as the implementation of the decisions that are made in the policy process. Depending on the organization of education in any particular society, this process can take place at highly centralized levels such as the nation or region or at lower levels such as school districts, school plants, and even individual classrooms. At each level decision must be made about the nature and scope of the educational system, personnel requirements, curriculum, funding needs, and other factors which affect the operation and results of the educational endeavour. In this brief article I will focus primarily on educational policy at the national or regional level but it is important to note that a similar analysis could be drawn for the lower levels.

Decisions at these higher levels are normally made by persons who are political appointees as well as by members of their staffs. That is, the crucial decision makers have obtained their positions as members of a particular government party, and their policies must be consistent with those of the present government. Second, such decision-makers are likely to be found in one or two ministries that are charged with responsibility for education. That is, they have little or no control over such other areas as health, housing, economic development, taxation or labour policies. Typically, these persons are not trained in educational research, and the time horizon over which they must make decisions is limited to a particular period of relatively short duration. That is, they cannot wait long for an answer, particularly if the problem is pressing or if elections or other imminent political changes are near.

If this sketch of the role of the educational policy-maker is appropriate, we might ask how educational research might be useful to the policy

function. Perhaps the following aspects are important. First, it must address the particular questions that are being faced by the policy-maker. Second, it must be timely in providing appropriate research findings in time for making the correct decision. Third, it should be written in such a way as to be understandable to a person who is not an expert on educational research. And, fourth, it should not violate the particular political constraints which are placed upon the policy-maker.

The first criterion suggests that even excellent research that does not focus on areas of decision is irrelevant to the policy-maker. In contrast, the most useful research will be that which contributes to the solution of problems on the policy-maker's agenda. Timeliness is also very important. If the decision horizon is a matter of weeks, then the promise of research results in several months or years is not very helpful. Accordingly, the ability to initiate and complete research in a short time is a useful dimension. Third, the fact that the policy-maker will not normally possess proficiencies in research means that he will have difficulty in understanding the highly specialized language and techniques of educational investigation. Therefore, he needs to have research studies that are presented in such a way that they are understandable to the non-expert.

Finally, useful research will provide findings and implications that suggest actions within the political constraints faced by the policy-maker. Research that points to the need to restructure major political and social institutions or that implicates exploitative labour policies of employers as the root of the conditions of the poor and their educational condition will hardly seem appealing to a Minister of Education who represents the dominant political party and ideology. Moreover, even if he were convinced that the research was correct in this indictment, the ability to restructure society is quite beyond his grasp. In fact, useful research findings will tend to be those which reinforce the directions of the existing government and enable it to solve its problems with small and marginal reforms.

Educational Research

But how do these characteristics of usefulness to the educational policy-maker compare with the nature of educational research? Educational research might be thought of as a systematic attempt to ascertain the impact of different influences and organizational arrangements on educational outcomes and their individual and social impact. Thus, educational investigations may entail the examination of the determinants of such results as academic achievement, attitudes, personality traits, and civic responsibility as well as the relationships between these characteristics

and adult attainments such as income, productivity, political participation, artistic accomplishment, and other aspects of adult life. It might also examine the relationship between educational and training investments and economic growth as well as changes in the distribution of educational opportunities and the distribution of income. In a broad sense, educational research focuses on the process of education as both a cause and a consequence of the characteristics of individuals, the organization and practices of the educational sector, and the institutions of the sponsoring society.

Educational research may examine the effects of particular types of teachers or curriculum on student achievement or the effect of ethnic integration of classrooms on cultural attitudes. It may focus on the appropriate ways to measure academic progress through the design of testing instruments for measuring personality traits or achievement. It may seek to determine why some schools indicate higher academic achievement than others or what type of system of educational finance will maximize opportunities. Alternatively, the research may attempt to determine how investments in education affect the growth of national income and changes in its distribution.

How are these activities to be accomplished? In general, there are four approaches, and each is utilized according to the nature of the problem. The experimental approach is used whenever it is possible to satisfy its requirements of allocating students randomly to different instructional treatments in order to ascertain whether the effects of the treatments will differ on the criterion of interest, for example reading proficiencies. Such an approach requires that it is possible to set out a study in which distinct treatments can be applied for reasonable periods of time to different groups while other factors do not change. Moreover, they assume that students can be assigned randomly to groups.

But, often it is not possible to satisfy these conditions. For example, it is rarely possible to assign students randomly to longer-term experiences and to alter systematically these experiences or treatments. Rather, it is advisable to ascertain the effects of existing educational experiences on students in the natural educational environment. In this case, a quasi-experimental approach is used in which statistical and other methodologies are used to attempt to isolate the unique effects of particular influences on educational results. This was the method used in the 'studies of international achievement' where an effort was made to ascertain the separate effects of home and school influences on achievement in different subjects. Such an approach is also useful for trying to determine the effects of education on results that take place much after the educational

experience is completed. For example, many attempts have been made to explore the effects of educational attainments on earnings and occupational status by relating a large number of influences such as family background, educational accomplishments, and other relevant factors to the adult earnings and occupations of individuals. Obviously it would be impossible to create an experiment in which we randomly assigned children to different amounts and types of education to determine what their adult accomplishments would be some twenty years later. By using a quasi-experimental approach where relevant influences are controlled statistically it is possible to approximate an answer to the question.

A third area of educational inquiry refers to analytical studies of a philosophical nature. This activity attempts to answer questions by setting out a logical framework that will enable one to see the implications of different premises, and it can ultimately be combined with one of the empirical approaches that was described above. For example, one might wish to ascertain an appropriate approach to moral education in a particular society. The analytical approach would begin with a specification of the premises of appropriate moral behaviour and then it would attempt to connect these behaviours to specific educational experiences that are logically relevant. A fourth approach to educational research is the historical inquiry that attempts to link historical movements and events to the formation and modification of the educational system as well as the effects of education on social change. These studies seek to understand the process of educational and related social change through an understanding of the historical influences that surround them.

Educational researchers using these techniques are likely to be found in major universities and in specialized government agencies such as national research institutes. By virtue of the high level of skills required for carrying out research, such persons are likely to be highly educated with doctorates or at least some training beyond the first degree. Moreover, they are often engaged as instructors in training other educational researchers. Status in the field is conferred largely by both national and international recognition of the quality of published work and a specific indicator of such status is the frequency with which one's research articles or monographs are cited by other researchers.

Although researchers may have strong political affiliations and may operate under stringent political constraints in certain societies, these are almost invariably less inhibiting than those which face the policy-maker. To a large degree the quality of the research will be judged by a national or international community of researchers and scholars. And the acceptance of research results by other researchers will be the major professional

criterion for ascertaining the quality of research.

But the nature of the research exercise and the training and context which characterize the educational researcher suggest some strong divergencies from the needs of the policy-maker. Recall that the policy-maker would find educational research more useful if it were topical with respect to his agenda, timely with respect to when the decision must be made, understandable in the presentation, and consistent with the political constraints on policy actions. In contrast, educational researchers will tend to choose topics of research based largely on the longer run concerns of the research profession in conjunction with what appear to be important issues in education. But the choice of a research topic is likely to be both broader and narrower than the types of decisions that face the policy-maker. For example, studies of the role of educational expansion on labour markets and inequality will tend to be broader than any particular decision that must be faced by the policy-maker, while that on the effect of bilingual studies on the achievement of ethnic minorities might be narrower even though both topics appear to have policy relevance.

Compounding the fact that even policy-related research will not be tailored normally to the precise questions faced by the policy-maker, the timing of educational research is also in conflict with his needs. Typically, it takes a number of years between the initiation of a research project and its completion. The time requirement is necessary for permitting the appropriate literature, survey and formulation of the problem in terms of research design; the collection of data which often require extensive testing programmes or surveys, the analysis of the data using sophisticated statistical approaches ; and the interpretation of the results. Only at this point can the study be drafted in a written form for the scrutiny of other researchers and interested readers.

Even after this lengthy period, the study is still not normally available to policy-makers as it is submitted to other researchers to check for weaknesses or biases. If the results are particularly important, there will be attempts to replicate them by other researchers using other data. Only after a substantial period of time beyond the completion of the original study will the results be considered reliable enough to suggest for policy purposes. This heavy time requirement means that good research cannot be chartered by policy-makers within the normal time horizon over which decisions must be made. Indeed, only by chance will the findings of a relevant study be available for utilization.

The complexity of educational research and the specialized terminology that is used to communicate procedures and results to other researchers means that studies will normally be written in ways that are

not easily understandable by the non-specialist. Moreover, the fact that the researcher will be writing primarily for other researchers provides little incentive to draft studies for the use of persons without research training. Given the filtering process by which research results are reviewed first by other researchers, it is not surprising that the reports are written for a research audience rather than a policy one. But this fact will surely reduce the comprehensibility of research and research results for the policy-maker.

Finally, the political and administrative constraints on the policy-maker are not reflected in similar constraints on the researcher. It is true that researchers may be politically sensitive in their choices of topics and in the manner which they state their conclusions if their own positions and funding are determined by the State. And in countries that permit intellectual discourse that fits only a given ideology, there will also be very stringent constraints. But to a very large degree the researcher will have fewer political constraints on his choice of subject, method and conclusions than will the policy-maker. To the degree that the research demonstrates that educational problems are found to reflect the deeper malaise of poverty or repression in other spheres of society as many recent studies have shown, there will be little that an educational minister or bureaucrat can do. Further, the research may actually even undermine his position if it seems to demonstrate that present policies will not provide answers to pressing educational problems.

Conflicting Needs of Research and Policy

From the foregoing, I think that it can be demonstrated that there are some natural differences between the educational policy process and the educational research process that may lead to conflict between the apparent needs of the former and the contributions of the latter. I have also argued that these differences are intrinsic to the processes rather than being idiosyncratic. Of course, the efficient policy-maker might respond by saying that these differences are not intrinsic and that educational research can be made more responsive to the demands of policy by tightening the linkages. For example, to the degree that the State provides most of the funding for educational research, policy-makers could set out a number of restrictions. Researchers could be required to address a specific list of problems. They could be given rigid time deadlines for providing results. They could be requested to write their research reports for the non-specialist and they could be coerced into presenting only those findings that are politically acceptable.

Certainly, there are elements of this type of coercion in many societies, and there will be some perceived restrictions on any research which is funded by the State even if the restrictions are not explicit. But to adopt the policies that were set out above would so corrupt the research process that it would no longer be useful for making decisions. Rather, all of these restrictions would prevent an honest inquiry of high quality from taking place, and in the long run the research function would become a recognized propaganda activity of the State with no credibility beyond that.

In short, I am arguing that there should be a tension between educational policy and research. They represent two different cultures with different requirements. The former is restrictive and decision-oriented with an emphasis on the short run. The latter is much less restrictive and can provide the types of information needed for moulding the more visionary world of the future. Even though a Minister of Education is frustrated by a report that illiteracy and the failure of schooling for the poor is largely a derivative of poverty itself, it is important to increase the awareness of the government and of society about the basic relations between economic circumstances of the population and their educational welfare. That is, a relatively independent educational research activity is more likely to provide a healthy challenge to prevailing and destructive dogmas than one which is completely controlled by the State and its ministerial apparatus.

One final point is especially important. To a very large degree it appears that educational research is expected to solve educational dilemmas because such problems are considered to be technical in nature. Thus problems of illiteracy, unequal educational attainments, educated unemployed and so on are treated as issues which are essentially amenable only to technical solutions. Given this presumption, educational research represents the investigatory approach that can provide appropriate technically valid answers. Many of these problems are not technical at all, but political. For example, Cuba was able to make transition from one of the lowest literacy rates in Latin America to one of the highest ones in a period of less than a decade by virtue of a radical change in political ideology after 1959. Likewise, large numbers of educated unemployed persons will continue to exist as long as there are needs for large reserve armies of labour to keep labour discipline high for fear of unemployment and to keep wages low for the benefit of national and multinational investors. In this respect, educational research cannot provide answers to such problems, for they are political in nature rather than educational. □

Professional Obsolescence and the Role of Continuing Education

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TODAY PROFESSIONAL OBSOLESCENCE has attained such proportions that it has become one of the major issues in the management world. The diverse professional groups such as managers, business executives, scientists, technologists, doctors, lawyers, academicians and so on, face this ever-growing problem. Obsolescent professionals can have debilitating impact on the effectiveness of organization. It is believed that overwhelming majority of professionals are obsolescent differing in degree. As a result of rapid technological and methodological changes and fast-growing knowledge, it is becoming increasingly difficult for professionals to keep abreast of current development and consequently obsolescence is a serious problem. The plight of professionals is more severe since they work with ideas and materials which are subject to rapid changes and obsolescence. Because the rate of increase of new knowledge and skills is not the same for different professional groups, problem of obsolescence depends on the individual's professional group membership. Most of the researches in this field have come from management, engineering and medicine. Organizational researchers have focussed their attention on factors underlying obsolescence.

Obsolescence ?

The organizational researchers have not been able to arrive at a precise definition of obsolescence. The definitions of obsolescence advanced more recently are first examined here. For the purpose of identifying the nature and causes of obsolescence among engineers and scientists, Ferdinand (1966) reported three types of obsolescence ; professional, areal

and ex-officio. He asserted that if the type of obsolescence was determined the remedial programmes could be implemented more effectively. *Professional obsolescence* exists in those persons whose technical competence does not embrace the farthest reaches of knowledge and technique in their profession. *Areal obsolescence* refers to a lack of knowledge in the technical speciality of a person who has allowed himself to settle complacently into a narrow specialized area. Symptoms of areal obsolescence are generally found in persons who are "less likely to apply rigorous analysis and mathematical techniques to the solution of problems who found to substitute 'judgment' for scientific evaluation, who encounter increasing difficulty in reading technical papers, even in their own area, and who regard innovations with hostility". Obsolescent individuals tend to be afflicted with a complacency which prevents their anticipating or participating in radical development about to unfold in their speciality. *Ex-officio obsolescence* is a form prevalent among scientists or technical persons assigned to administrative work. A common example is that of the engineer assigned to supervisory and administrative work who finds that his technical capabilities gradually decline and become outdated.

Burach and Pati (1970) found that obsolescence exists when there is a discrepancy between job needs and managerial or professional capabilities as a result of innovation, or when the knowledge and skills of a manager are not sufficient to accomplish his job.

Mahler (1965) defined managerial obsolescence in terms of "the failure of the once capable manager to achieve results that are currently expected of him". He identified various types of obsolescence: *ability obsolescence*—the manager's abilities and skills are no longer sufficient for him to keep up with past jobs; *attitudinal obsolescence*—the managers fail to maintain flexibility in attitude and approach, changing problems and conditions; *creeping obsolescence*—the nature of the job slowly changes and the incumbent slowly ossifies; *abrupt obsolescence*—an innovation eliminates or drastically changes a manager's job. According to Shumaker (1963) obsolescence is a "reduction in technical effectiveness resulting from a lack of knowledge of the new techniques and, what is more, perhaps entirely, new technologies that have developed since the acquisition of the education by the individual".

Siefert (1963) defined obsolescence for engineering as "the measurement at some point of time of the difference between the knowledge and skills possessed by a new graduate of a modern engineering curriculum and the knowledge and skills actually possessed by the practising engineer who may have completed his formal education a number of years ago". Zelikett (1969) analysed catalogue course offerings for five engineering colleges

from 1935 to 1965 at five-year intervals. By identifying courses that were added, he developed engineering erosion curves for five years of engineering. Mali (1969) advanced an approach to the definition of obsolescence in the form of an obsolescence index (OI) :

$$OI = \frac{\text{Current knowledge understood by engineers}}{\text{Current knowledge in the field}}$$

This question is based on the rate of change versus time. A high rate of technological obsolescence is related to a high rate of growth. The curve which Mali developed is a conceptual one and the growth curve expresses the exponential rate of technological obsolescence. Mali listed four causes of engineering obsolescence : (a) failure to keep up with the change of knowledge in the field—50 per cent were unaware of new, emerging fields of knowledge; (b) a low level of utilization of technology in the field. Half of the participants admitted that their work assignments were essentially sub-professional. This results in skill atrophy ; (c) over-specialization , (d) failure to plan a career. Many of the engineers did not do long-range planning for their careers and hence failed to avail themselves of opportunities for updating.

Norgren (1965) classified two major types of skill obsolescence—technology-based obsolescence, and product-based obsolescence. Malmros (1963) divided obsolescence into two categories—rustiness which results from the lack of purpose, and failure to grow and keep up with changes. He associated the failure to grow and keep abreast of new developments with persistence of repetitive patterns of behaviour and the lack of sensitivity to change. He described five signs of obsolescence in engineers : (a) the engineer became less and less inclined to apply rigorous mathematical techniques to obtain solutions to his problems ; (b) he encountered increasing difficulty in reading new technical papers and felt frustrated because he could not follow the mathematics ; (c) new technical concepts were confusing to him , (d) new tasks and assignments began to look too difficult to be practical; and (e) contemporaries did not seek his advice.

According to Shearer and Steger (1975) : "A person is obsolescent to the degree that, relative to other members of his profession, he is not familiar with, or in otherwise unfitted to apply, the knowledge, methods, and techniques that generally are considered to be important by members of his profession". In their opinion, when a person becomes obsolescent to such a degree that when all costs and benefits are accounted for his net benefit to his organization is negative then he will be considered obsolete.

Kaufman (1974) has tried to integrate various descriptions of obsoles-

cence used in a variety of studies and presented a general definition: "Obsolescence is the degree to which organizational professionals lack the up-to-date knowledge or skills necessary to maintain effective performance in either current or future work roles". Thus, he has identified three main characteristics of obsolescence :

- (a) *A lack of new knowledge or skills* : All authors generally agree that obsolescence occurs when the individual lacks new knowledge or skill.
- (b) *Ineffectiveness* : All authors emphasize the role of ineffectiveness but not all types of ineffectiveness could be attributable to obsolescence. The most up-to-date professional who is unwilling or is unable to use knowledge and skills may be ineffective but not obsolescent. Ineffectiveness that comes directly from a lack of awareness of new knowledge and skills should be attributed to obsolescence.
- (c) *Job and professional roles* : A definition of obsolescence ties the concept to the *job assignment obsolescence*—professionals who lack the knowledge or skills necessary to perform their current jobs effectively are obsolescent, and *versatility or potential obsolescence*—professionals may be up-to-date in their present job assignments, but they may not have kept current in their professional areas, and so their capability to take on different or greater responsibilities is limited. Such obsolescence potentially impairs effectiveness of performance in future work roles.

Deterioration is not obsolescence. In some of the definitions it has been identified that a loss of previously acquired knowledge is an aspect of technical obsolescence and a loss of motivation, physical stamina, or capacity to adopt to change is managerial obsolescence. These losses in knowledge or individual strengths are more properly defined as deterioration than as obsolescence.

Personal Factors in Obsolescence

There are a number of personal factors that may either predispose professionals to keep abreast of current developments or contribute to their obsolescence. If the relationships between obsolescence and personal characteristics are understood, management can utilize this to minimize obsolescence in the organization. The participants in the First Conference on Occupational Obsolescence in 1966 recognized "that there is a need to isolate . . . some of the individual developmental factors that may or may not influence on obsolescence" (Roney 1966).

Age : It has been widely accepted that obsolescence is related to older age of professionals (Shearer and Steger 1975, Heas 1968, Dalton and Thompson 1971). It has been ascertained by some studies that the professional competence peaks when the professionals are in their thirties and declines thereafter (Mali 1969, Dalton and Thompson 1971) and this result has been widely accepted in the field of management. It is well known in the management that the older professionals feel that they are not fully qualified to handle their jobs and they cannot keep pace with new developments. But several studies have contradicted the above findings and found that the professional competence peaks later in the career (Dennis 1956, Eiduson 1966, Oberg 1960, Sparks 1966). Another type of finding is that the professional competence peaks both early and later in the career. The relationship between age and performance has been described as twin-peaked, saddle-shaped, or bimodal.

Now it is evident from the above findings that there is no clear-cut relationship between obsolescence and increasing age. It is apparent that there are two populations of professionals. One that declines rapidly with age and another that either maintains its performance or improves it over time. It is generally observed that those who are obsolescent remain in the organization but some of the obsolescent professionals leave the profession either voluntarily or because of dismissals or forced retirement.

Half-life : The concept of half-life has been taken from nuclear physics and is widely used to express the extent to which obsolescence affects different professions. Dubin (1972) has defined, "The half-life of a professional's competence can be described as the time after completion of professional training when, because of new developments, practising professionals have become roughly half as competent as they were upon graduation to meet the demands of their profession". Here it is clear that it is not the age but length of time that has elapsed since the professionals completed college. For example, a professional who has completed his education at the age of 30 years may be more up-to-date than a 30-year old professional who has been out of college for 10 years continuously. Rosenow (1971) estimated that half-life of the medical internist's knowledge was 5 years. Lukasiewies (1971) reported that while the half-life of a 1940 engineering graduate was 12 years, in 1970 it had shrunk to 5 years. Bromby (1972) reported that the average half-life of a physics paper was 8 years. Dubin (1972) estimated the half-life of knowledge of psychologist average 10 to 12 years on the basis of interviews conducted by him on a small number of psychologists. In a study of continuing education needs of natural resource managers and scientists, George and Dubin (1972) estimated that 20 per cent of the professionals'

working time should be devoted to updating.

Abilities : Capacity for knowledge acquisition is an important quality that facilitates or inhibits professional obsolescence. Kaufman (1973) reported that the lack or loss of technical ability might be most important contributing condition for obsolescence to occur among engineers. In a study, Kaufman (1972) has found that engineers possessing high levels of engineering ability at the outset of their careers will tend to participate in the creation and communications of new knowledge later in their career to a greater extent than would those of lesser ability. Different types of abilities are related to obsolescence on the basis of requirements of the particular professional occupation. Inadequate cognitive ability is the most important personal characteristic of managers that predisposes to obsolescence. Older professionals become obsolescent, although their intellectual abilities may not have declined. Possession of substantial amount of cognitive abilities is essential, but not sufficient condition for remaining up-to-date. It is obvious that some other personal factors can facilitate or inhibit the acquisition of knowledge.

Motivational Factors for Updating

Motivation is the most psychological characteristic associated with obsolescence. Adequate level of motivation is essential to keep abreast of current development. On the basis of interview with managers, Nargren (1966) reported that "the failure to keep abreast of developments in the relevant field was due primarily to lack of motivation". It is clear from the evidence that many professionals may have the ability to keep abreast of current developments, but the high motivation is responsible for updating. Lack of ability was mostly cited as the characteristic of obsolescence, but it is very likely that lack of ability is coupled with low motivation and that is why professional become obsolescent. Kaufman (1974) maintains that lack of or loss of internal motivation to stay up-to-date is related to the individual's interests, needs, goals, energy and initiative.

Shearer and Steger (1975) in their study measured six dimensions of motivation and analysed the relationship of each to obsolescence. They found that higher obsolescence was due to lower career expectation, lower perceived duty to stay up-to-date, less time orientation toward the future, lower need for achievement and more external orientation but significant result was not obtained on rewards.

In the opinion of Dubin (1972), a professional person must be highly motivated in order to maintain competence throughout his career and he also asserted that this is a job for psychologists. The model of Dubin and Cohen (1970) described the motivation to update as multi-dimensional problem involving the need for self-achievement, supervisory relationships,

organizational climate, management policy, on-the-job learning, peer interaction, and the availability of means and methods for keeping up-to-date. Motivation consists of more than a single variable. They presented the mathematical model. Updating is an active learning process in contrast to obsolescence, which is a decremental process and updating process is a whole rather than a collection of individual constituents.

At a symposium in Belgium, Porter (1971) advanced a theoretical approach in understanding motivation for professional updating through the expectancy theory. The model attempts to integrate concepts of motivation effort, job performance ability, satisfaction, attitudes and the rewards of work. How the professional evaluates different kinds of potential rewards is significant. There are intrinsic rewards (a feeling of accomplishment, self-fulfilment and others) or extrinsic rewards (pay increase, promotion, favourable evaluation, etc.). His presentation included a number of hypotheses that need to be tested. In the same symposium, Hinrichs (1971) mentioned the results of the application of two theoretical models of motivation—content and process—to the problem of skills updating in a large technology-based organization. He reported that "the reward system of the organisation individual's perception of the outcomes that will occur to him for updating behaviour. This is significantly related to the effort which he devotes to updating". Margulies and Raia (1967) carried on interviews with scientists and engineers in advanced research and development technology laboratories and found that on-the-job problem-solving and interaction with colleagues motivated their professional growth.

Personality factors : Personality factors are also responsible for professional obsolescence such as weak self-concept, fear of risk-taking, rigidity, intolerance of ambiguity, low creativity and so on. Shearer and Stager (1975) interviewed the military officers and civilians in the United States Air Force working in the area of weapon systems development and found that obsolescence was related to poor adaptability to change for both the total sample and managerial sub-sample. It is emphasized that adaptability to change is not easily altered. It is the job of psychologists to suggest the organization not to select people who do not have traits to adopt themselves to the given situation.

Self-concept : Self-concept influences the behaviour of professionals toward keeping pace with new developments. Professionals who have self-esteem may maintain their competence in their field and seek out the challenging goals to satisfy their own growth needs. Professionals having low self-concept may seek such goals to avoid failure and security needs will dominate on obsolescent professionals. Professionals with high self-esteem

will be confident to seek opportunities to show their competence in other new areas also but professionals with low self-esteem will seek such opportunities to remain in the job, to work with which he is familiar and avoid keeping pace with new knowledge and skills. Loss of self-confidence can be an important factor in obsolescence.

Entrepreneurship : It has been widely accepted in the field of management that fear of taking any risk is an important contributing cause of obsolescence. Rogers (1962) has explored why individuals are open to new ideas and innovations and reported, "venturesomeness is almost an obsession with innovators. They are eager to try new ideas . . . The major value of the innovator is venturesomeness. He must desire the hazardous, the rash, the daring, and the risking. The innovator must also be willing to accept any occasional debate when one of the new ideas he adopts proves unsuccessful". High risk-takers have a greater tolerance for change and perform better under changing conditions. High risk-takers are more inclined to do work that are different from their present work and having a strong need for achievement and a low fear of failure.

Rigidity : Rigidity is an important personality characteristics that inhibits professionals to keep abreast of current development. Rigidity can impair the professional's ability to cope with change. Obsolescence is not only among those who are unable to change because of inadequate training but also among those who are unwilling to change despite they have got the ability to do so.

To sum up, intellectual abilities and general interests remain relatively stable during the career of professionals, but the motivational and personality characteristics tend to change as the career progress. We can recommend lines of action to control obsolescence in organization and help management to understand the causes of obsolescence. This information will certainly help the individual manager in detecting the obsolescence prone subordinates and in utilizing differences in personal characteristics for bringing obsolescence under organizational control. Management can utilize the best techniques of selection and placement to reduce obsolescence. Various techniques of assessment and career counselling can be used to check obsolescence in the organization. Prevention of obsolescence makes it essential that its ideology be known. Obsolescence can be prevented, but it is difficult to treat obsolescence after it has been diagnosed.

Role of Organizational Variables in Obsolescence

Obsolescence cannot be brought under organizational control unless the work environment encourages professionals to keep up-to-date. At the First Conference on Occupational Obsolescence, behavioural scientists recognized that "the environmental factors in obsolescence are more

important than the individual factors" (Roney 1966). Modification of work environment is easier than bringing change in the individual characteristics of professional. It appears that work environment is an important variable in determining the degree to which professionals lack the up-to-date knowledge and skills with increasing age.

Lack of challenge in the work environment may contribute to obsolescence in professionals. If professionals do not face challenging work in the organization, chances are very high that they will be declared obsolescent in organizations. Their abilities, knowledge and skills may be poorly utilized in the organization and consequently they become obsolescent as a result of lack of challenging work. Utilization of knowledge and skills is an important aspect of work challenge. Ritti (1971) identified the dimensions of utilization, misutilization and under-utilization. The work which does not utilize abilities, knowledge and skills of professionals may be identified as either misutilization or under-utilization. It appears that misutilization of knowledge and skills is very likely to influence obsolescence. Misutilization is the greatest when professionals do routine work that lacks intellectual demands under heavy time pressure. Under-utilization is the greatest when professionals do work that lacks both intellectual and time pressure.

It has been repeated that professionals who have been assigned to different jobs during their career can more easily adopt to change and become up-to-date. Obsolescence occurs in part from being assigned to stable job that do not require different types of knowledge and skills. Professionals who have wide grasp of important new fields rather than a thorough knowledge of narrow specializations have been found to make greater contributions to both their organization and their professions. Management can create such jobs which discourage obsolescence and apply techniques of job design and enrichment to professional jobs.

Environmental variables consist of an organizational climate, supervisory behaviour, challenging work, peer interactions and company policy. Organizational climate is the various aspects of the organization that combine to characterize healthy or unhealthy organizational climate. Organizational climate can stimulate or stifle utilization of knowledge and skills. There are some aspects of the organizational climate that have been identified as relevant to obsolescence. Organizational change and development can be used to create a climate that discourages obsolescence. Management can control such aspects of organizational climate that discourage professionals to keep abreast of new developments. The work environment can be transformed by organizational change and development that encourages professional growth. There are some motiva-

ting organizational climate variables such as openness of communications, varied and challenging work assignments, colleagues interaction, recognition for successful work, opportunities to participate in decision-making activities, responsibility in work assignments, leadership and situations in which individuals may seek and find help.

The major environmental factor in updating is organizational climate (House and Rizzo 1972). Margulies and Raia (1967) represented, "when the organizational climate can be described as 'open', with a high degree of experimentation, innovativeness and nurturance, the result is a *healthy* and highly creative organization—one in which individual motivation, and hence, individual activities contribute to the effective and efficient accomplishments of the organizational objectiveness. The non-adaptive organization, on the other hand, is insensitive to its environment. Individual motivation and creativity are suppressed, and the result is something less than the accomplishment of total organization objectives". Campbell and Dunnette (1968) have identified the following characteristics of a high organizational climate: (a) achievement—a desire of the group to do a good job and contribute to the performance of the company; (b) concern for excellence—degree to which the group is concerned with improving individual performance, being flexible, innovative, and competent; (c) problem-solving emphasis—extent to which the group anticipates and solves problems related to group functioning; (d) reputation—status and reputation of individuals work group as compared to other work groups; (e) training opportunities—degree to which the organization provides training for individuals; (f) atmosphere—degree to which supervisors generate a supportive and friendly atmosphere; and (g) initial job orientation—individuals are informed of what to expect when they first start on the job.

Supervisory behaviour is an important determinant for updating. Studies on managers (Dubin, Alderman and Marlow 1967) and engineers (Dubin and Marlow 1965a) indicate that the supervisors are not developing their subordinate's professional growth. Tlandis (1969) also maintains that it is "the immediate supervisor that counts in the development of subordinates. If a boss does not encourage a man, he will not take further course work, unless the supervisor is willing to encourage and accommodate his men in spite of the possible interference with his work schedule, few men will undertake continuing education".

Organization should also decide the policy that may help professionals for updating. Some organizations are really interested in updating professionals and educational assistance funds are instituted for continuing education courses. It is important to note whether taking additional work

is sufficiently rewarded or not in terms of promotion or salary increases. Only the financial assistance is not sufficient for updating but organization should also properly give reward to those who keep abreast of current development so that professionals can be effective. Even the up-to-date professionals will be ineffective in the absence of proper reward. So the continuing education courses and rewards should go simultaneously.

Measurement of Obsolescence

Measuring professional obsolescence is still a problem because that has not been sufficiently explored. Organizational researchers should take active interest in the measurement of obsolescence by appropriate testing instruments. Shearer and Steger (1975) developed a questionnaire which was a five-part self-administering instrument designed to measure demographic variables, obsolescence, motivational factors, and career expectations. The questionnaire statements were derived from literature on obsolescence or previously published psychological tests. They collected data on 451 military officers and civilians working in the area of weapon system development in the United States Air Force. The respondent had to indicate his disagreement or agreement in the questionnaire, on a scale of one to nine, with reference to statements reflecting some aspects of the factor being measured. The respondent had to rate his current knowledge of five appropriate subject areas against the knowledge of others in his field, and against his past knowledge. He was also asked to indicate the current and future importance of each subject area in his job. The importance ratings given by all respondents in the field were used to weight the five subject areas by field. The individual's ratings of his own knowledge were then weighted and summed to yield a measure of relative manpower obsolescence.

In the Pennsylvania State University studies, the professional groups were asked to give information using questionnaires and by interviews regarding their attitudes toward the need for updating, the factors that motivate them to keep abreast of new developments, their perception of the supervisor's attitude toward further education and training, the methods they use and the methods they prefer for keeping up-to-date. The studies with engineers (Dubin and Marlow 1965b), hospital personnel (Dubin and Marlow 1965a), managers in business and industry (Dubin, Alderman and Marlow 1967), municipal managers (Dubin, Alderman and Marlow 1968) and natural resource managers and scientists (George and Dubin 1972) were undertaken. Respondents were asked the extent of their personal updating needs in each area (a list of some 50 to 60 areas

of knowledge specific to their own field) and whether such knowledge was needed by their subordinates and immediate supervisors. In the final section of the questionnaire, respondents were given the opportunity to write in the specific courses they would like to include in a personal self-development programme. Each of these studies indicated that professionals in mid career need updating, but varying factors interfere with the attainment of this goal, such as: 'do not have the time', 'job does not demand more education', 'family priorities', 'too far to drive to a school', and 'no rewards for getting an additional degree'.

Lawler (1967) found in a survey of post-doctoral training needs of industrial psychologists that 70 per cent of the respondents were interested in post-doctoral training, while 60 per cent thought that the professional association need responsibility for sponsoring such programmes. The study included questions regarding training experience taken within the past five years the most valuable and least valuable past training, and the most needed areas of future training and plans for satisfying those needs.

Rosenow (1971) used a 70-item objective test of medical knowledge. He found that physicians who were out of school between 5 and 15 years scored slightly less than those over 5 years. Medical specialists scored higher than non-specialists. As a result of this experiment, about ten medical societies have initiated self-assessment tests.

Carmichael (1970) reported the advantage of the self-assessment test that was in objective measure of psychiatric knowledge and skills: (i) it helps the prospective participants to want what they require, not telling them what they need to know, (ii) it uses a model based on the way adults learn, a process model rather than a categorical content one, and (iii) it avoids over emphasis on practitioners needing more information and the undue clamour for better means of dealing with the flood of information.

Cohen and Dubin (1970) developed an objective mathematics competence test for industrial engineers, and found that the more recent the degree, the higher the score. Mali (1967) developed an index of obsolescence in electrical engineering and described: The concept of the obsolescence index (α) is defined as the ratio between the current knowledge, as understood by the practitioner, and the current knowledge in the field. We may infer that when the α equals 1, the practitioner is considered, as being current. When the α equals zero, the practitioner is considered as being obsolete.

Gannon and Noon (1971) developed an instrument for measuring obsolescence in personnel management focussed on the latest knowledge and the instrument consisted of statements containing information abstracted from current personnel management textbooks. The statements of the test

appear to be opinions with which the personnel executives can either agree or disagree. It can be the part of an attitude or opinion survey. Knowledge ratings have been used to measure the degree to which professionals are aware of new or emerging field (Perrucci and Rothman 1969). Kaufman (1973) described the critical indecent technique as a standard method that could be used to identify specific examples of obsolescence behaviour.

Kaufman (1974) has discussed different approaches of measuring obsolescence. There are two levels to which these are concerned : the macro level, which is concerned with indices of obsolescence on an organization wide basis ; and the micro level, which is concerned with determining to what degree the individual professional is obsolescent. In order to measure obsolescence on any level, two general methods can be applied : (i) *Personnel record data*—about age, education, performance, skills, and professional contributions have been utilized for measuring obsolescence. It has been clearly suggested that information from personnel records may not measure obsolescence as it has been defined. Readily available information in personal files can be used as the gross indication of obsolescence in the organization, and (ii) *Organizational analyses*—more direct, sophisticated, and costly techniques can be developed by using various methods that are classified under organizational analyses—attitude surveys, knowledge ratings, and knowledge tests. He maintains that the various methods of organizational analyses are superior to personnel record data, since they provide direct measures of obsolescence and permit management to monitor and respond effectively to the problem.

Present Efforts to Cope with It

There are new types of educational technology which can help professionals to keep abreast of new development. The editorial in the *Indian Express* (8 December 1975) described the remark made by Dr. V. Ramalingaswami, Director of the All India Institute of Medical Sciences that the curriculum in the most of medical colleges is old-fashioned and outdated and the training of doctors, still "largely follows the colonial legacy". He argued that a "thorough shake-up" of the traditional concepts and courses are underway at his institute. He emphasized that "shake-up" in the courses is essential at the basic degree level. Only to raise quantity is bad, in any sphere quality should not be ignored at any cost. It is important to adhere to strict standards in selection, training and testing medical graduates. So educational technology should be such that can discourage outdated educational courses.

Professionals of today are facing the problem of obsolescence and will be hardly able to maintain effective performance in the professional world

of tomorrow. Professionals must take steps toward identifying those areas in which training or retraining is essential to be up-to-date. It is the organization that can decide whether professionals require certain type of training. Organization should make sure that they are trained. Professionals should take responsibility to receive training or keep abreast of new development and only in that case they can prevent obsolescence. Professionals must plan their own continuing development, and take responsibility for following up on their plan (Haas 1969).

Dubin (1974) described that "motivational and organizational inputs are needed to keep professionals up-to-date. There is a continuous life-long learning requirement, and professional assessments need to be carried out at various stages of one's career". It seems that both psychological and organizational variables could be related to obsolescence. These factors should be brought under organizational control to combat obsolescence. Management should not select such persons who are obsolescent prone and personality characteristics of persons should be thoroughly examined, otherwise it would be difficult for management to prevent obsolescence even if organizational climate are such to motivate professionals to keep abreast of new development.

Hypothetical Model

A number of variables could be related to professional obsolescence and quite a number of interacting variables appear to be involved in professional obsolescence. There can be a number of personal or circumstantial factors responsible for obsolescence of professionals, such as, lack of motivation related to individual's interest, needs, goals, energy and initiative; inadequate self-concept; poor adaptability to change; fear of risk-taking; rigidity; intolerance of ambiguity or uncertainty; lack of awareness of change; heavy family responsibility; desire to maintain status quo; lack of broader education for the development of conceptual skills. There are also several organizational variables which could be responsible for obsolescence, e.g. lack of challenging work; poor utilization of professional's abilities, knowledge and skills; inadequate organizational health; organizational leadership; organizational structure; organizational size; organizational philosophy, etc. It would be desirable to be able to prevent obsolescence rather than to treat it after diagnosis. Prevention of obsolescence makes it essential that its etiology is known. Factors associated with professional obsolescence can be summarized as follows:

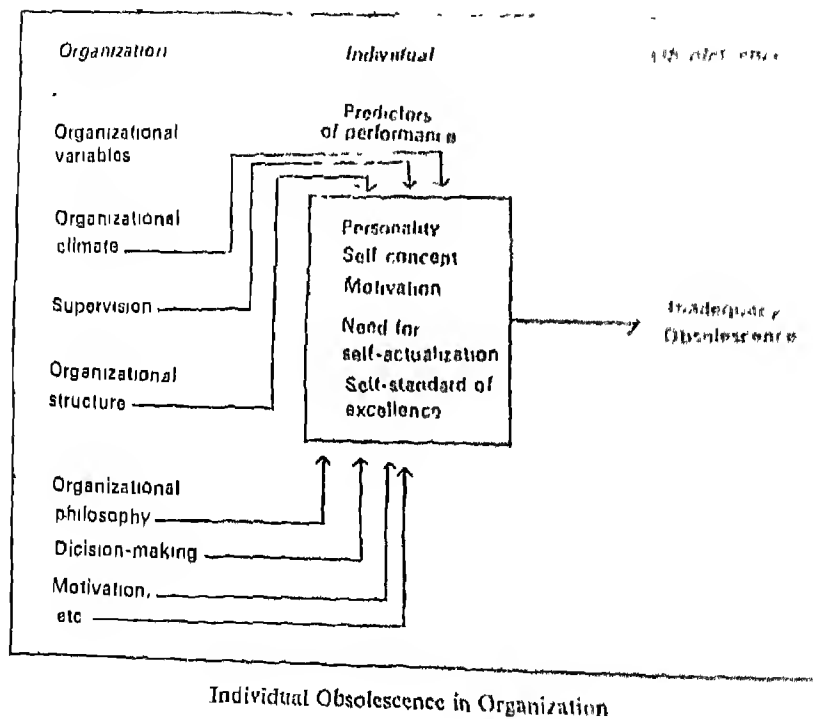
A. Socio-psychological Factors

1. Self-concept and personality.

2. Motivation, growth, security, achievement, recognition, accomplishment, challenging work, responsibility in participation in decision-making, supervising, working conditions, interpersonal relation, money, self-actualization, performance standard, etc.

B. Organizational Factors

Organizational variables : Communication, autonomy, decision-making, reward, responsibility, conflict, structure, motivation, support, warmth, identity, supervision, interpersonal relations, organizational philosophy, organizational health, etc.



References

- Bromley, D A. Physics in perspective. *National Academy of Sciences News Reports*, 1972
- Burack, E H and Pati, G.C. Technology and managerial obsolescence. *MST Business Topics*, 1970, 18, 49-50
- Campbell, J P., Dunnette, M.D., Lawler, E.L. and Weick, K.E. *Managerial behaviour performance and effectiveness*. New York : McGraw-Hill, 1970

- Carmichael, H.T. The psychiatric knowledge and skills self-assessment program. *Journal of the American Medical Association*, 1970, 213 (16:64)
- Cohen, D.M. and Dubin, S.S. *Measuring professional updating in mathematical competence*. University Park : Department of Planning Studies, Continuing Education - Pennsylvania State University, 1970
- Dalton, G.W. and Thompson, P.H. Accelerating obsolescence of older engineers. *Harvard Business Review*, 1971, 49 (5), 57-67
- Dennis, W. Age and productivity among scientists. *Science*, 1956, 23, 724-725
- Dubin, S.S., Alderman, E. and Marlow, H.L. *Managerial and supervisory educational needs of business and industry of Pennsylvania*. University Park : Department of Planning Studies, Continuing Education - Pennsylvania State University, 1967
- Dubin, S.S., Alderman, E. and Marlow, H.L. *Education needs of managers and supervisors in cities, boroughs and township in Pennsylvania*. University Park : Department of Planning Studies, Continuing Education, Pennsylvania State University, 1968
- Dubin, S.S. Obsolescence or life-long education. A choice for the professional. *American Psychologist*, 1972, 27 (5), 416-498
- Dubin, S.S. (Ed.) *Professional obsolescence*. Lexington, Mass. : Lexington Books, D.C. Heath, 1972
- Dubin, S.S. Updating and midcareer development and change. *Vocational Guidance Quarterly*, 1974, 23(2), 152-158
- Dubin, S.S. and Cohen, D.M. Motivating to update from a system approach. *Journal of Engineering Education*, 1970, 60(5), 366-368
- Dubin, S.S. and Marlow, H.L. *The determination and measurement of supervisory training needs of hospital personnel*. University Park : Department of Planning Studies, Continuing Education, Pennsylvania State University, 1968
- Eiduson, Beatrice. Productivity rate in research scientists. *American Scientist*, 1966, 54(1), 57-63
- Ferdinand, T.N. On the obsolescence of scientists and engineers. *American Scientist*, 1966, 54(1), 46-56
- George, J.L. and Dubin, S.S. *Continuing education needs of natural resource managers and scientists*. University Park : Department of Planning Studies, Continuing Education, Pennsylvania State University 1972
- Haas, F.C. Executive obsolescence. *AMA Research Study*, 1968, 93
- Harrichs, J.R. Applying motivational concepts to updating. Symposium presented at the International Congress of Applied Psychology, Liege, Belgium, July 1971
- House, R.J. and Rizzo, J.R. Role conflict and ambiguity as critical variables in a model of organizational behaviour. *Organizational Behaviour and Human Performance* 1972, 7(3), 467-505
- Kaufman, H.G. Relations of ability and interest to currency of professional knowledge among engineers. *Journal of Applied Psychology*, 1972, 56 (6), 495-499
- Kaufman, H.G. A critical incident study of personal characteristics associated with technical obsolescence among engineers. *Studies in Personnel Psychology*, 1973, 5(1), 63-67
- Kaufman, H.G. *Obsolescence and professional career development*. New York : American Management Association, 1974
- Kaufman, H.G. Relationship of early work challenge to job performance, professional contributions and competence of engineers. *Journal of Applied Psychology*, 1974, 59(3), 377-379

- Landis, F. *Continuing engineering education : Who really needs it ? In continuing engineering series 4*. Pittsburgh : American Society of Engineering Education, 1969
- Lawler, E. Post-doctoral training for industrial psychologists. *The Industrial Psychologist Newsletter*, 1967, 4(2), 34-40
- Lukasiewicz, J. The dynamics of science and engineering education. *Engineering Education*, 1971, 61, 880-882
- Mahler, W.R. Every company's problem—Managerial obsolescence. *Personnel*, 1968, 42, 8-10
- Mali, P. Measurement of obsolescence in engineering practitioners. *Manage.*, 1969, 21(5), 48-52
- Malmros, A. *Obsolescence of engineering and scientific personnel in industry*. Paper presented at the Midwest Conference on Reducing Obsolescence of Engineering Skills. Chicago, Illinois Institute of Technology, March 1963
- Margulies, N and Raja, A.P. Scientists, engineers and technological obsolescence. *California Management Review*, 1967, 10(2), 43-48
- Norgren, P.H. *Obsolescence and updating of engineers and scientists*. Columbia University, Seminar on Technology and Social Change, Nov. 1966
- Oberg, W. Age and achievement and the technical man. *Personnel Psychology*, 1960, 13, 245-284
- Perrucci, R. and Rothman, R.A. Obsolescence of knowledge and the professional career. In R. Perrucci and J.E. Gerstl (Eds.) *The engineers and the social system*. New York : Wiley, 1969
- Porter, L.W. A motivational theory for updating. In S.S. Dubin (Chm.) *Motivation for professional updating*. Symposium presented at the XVII International Congress of Applied Psychology, Liege, Belgium, July 1971
- Ratti, R.R. *The engineer in the industrial corporation*. New York : Columbia University Press, 1971
- Rogers, E.M. *Diffusion of innovations*. New York : Free Press of Glencoe, 1962
- Roney, J. G. *Report on first conference on occupational obsolescence* (Dallas, Texas, June 21-22, 1966). Menlo Park, Calif. : Stanford Research Institute, 1966
- Rosenow, E.C. (Jr) *Medical knowledge self-assessment programs*. Paper presented at 173rd Annual Meeting of the Medical and Chirurgical Faculty of State of Maryland, Baltimore, 14 April 1971
- Shearer, R.L. and Steger, J.A. Manpower obsolescence : A new definition and empirical investigation of personal variables. *Academy of Management Journal*, 1975, 18(2), 263-275
- Stuart, Naomi and Sparks, W.J. Patent productivity of research chemists as related to age and experience. *Personnel and Guidance Journal*, 1966, 45, 28-36
- Zelikoff, S.B. On the obsolescence and retraining of engineering personnel. *Training and Development Journal*, 1969, 23, 3-15

(1)

The Effect of Imagery on the Learnings of Extended Passages : A Study

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The purpose of the study was to examine the effect of imagery on the learning of extended passages and also to find the relationship, if there is any, between the individual differences in imagery ability and the imagery value of the to-be-learned material. The study assumed a 2x2 interactional paradigm having two types of materials, i.e. high and low imagery value as determined by group ratings and two groups of pupils, i.e. good and poor imagers as categorized by Bengali version of Vividness of Visual Imagery Questionnaire. Both the passages were presented twice to both the groups through auditory medium and was followed by four alternative multiple choice texts to measure the amount of retention. The results showed that the difference in learning was due to the imagery value of the material and not to the differences in imagery ability of the learners. The findings suggested that both good and poor imagers learn better from the high imagery material than from the low imagery material.

RECENT STUDIES OF IMAGERY have firmly established the fact that imagery variables are highly effective in a variety of memory and learning tasks (Bower 1970, Bugelski 1970, Paivio 1969, 1971, Reese 1970, Rohwer 1970). The empirical investigation of imagery can be approached in several ways. In one, represented by Paivio (1971), the concern has been with the effect of stimulus characteristics, such as the perceived vividness or concreteness of events, usually language symbols, on the efficiency on learning processes. In another, instructions or training on the use of imagery has been the most common method of manipulating the variable experimentally (Bower 1970, Bugelski, Kidd and Segman 1968). Within the third framework, imagery has been defined in terms of individual differences based on subjects' reports of vividness of imaginal experiences (Galton 1883, Richardson 1969).

The three variables, viz. the stimulus characteristics, imagery instructions

and individual differences in imagery have been found to be effective in paired-associate learning and recall (Paivio 1969, 1971, Bower 1972). It has been repeatedly demonstrated by Paivio that the image-evoking value of the materials as determined by group ratings facilitate better learning than materials which do not evoke images. Moreover, the same general result has been noted with image-evoking sentences (Cunningham 1972) and image-evoking prose passages (Yuille and Paivio 1969).

However, all these studies have involved sentence-by-sentence presentation. What remains unanswered is whether imagery will facilitate learning in uninterrupted listening of a whole passage usually found in school texts. The purpose of the study was to examine whether imagery could facilitate learning of connected discourse and also to see the relationship, if there is any, between the individual differences in imagery and imagery value of the to-be learned material. In other words, how far the amount of learning of connected discourse is affected by the high and low imagery capacity of the learners when the to-be learned materials are distinctly categorized as high or low with respect to imagery value?

The design of the study thus assumed a 2 x 2 factorial paradigm having two types of materials (e.g. high and low imagery value as determined by group ratings) and two groups of learners (e.g. good and poor imagers as categorized by the adapted version of Vividness of Visual Imagery Questionnaire). It was expected that 'good imagers' would learn better from high imagery material and 'poor imagers' from low imagery material. Specific hypotheses were as follows :

- H 1 : With the good imagers
 \bar{X} High imagery material > \bar{X} Low imagery material
- H 2 : With the poor imagers
 \bar{X} High imagery material > \bar{X} Low imagery material
- H 3 : With the high imagery material
 \bar{X} Good imagers > \bar{X} Poor imagers
- H 4 : With the low imagery material
 \bar{X} Good imagers > \bar{X} Poor imagers
- H 5 : \bar{X} Good imagers with High imagery material > \bar{X} Poor imagers with Low imagery material
- H 6 : \bar{X} Good imagers with Low imagery material > \bar{X} Poor imagers with High imagery material.

Method

Sample

The experimental sample was drawn from students of Class X. To

eliminate age variable their age was restricted between 14-16 years, mean 15.9. Pupils of Class X were used since this was the age-group on which the author (Chatterjee 1976) has adapted in Bengali the Vividness of Visual Imagery Questionnaire (VVIQ) of Marks (1973). Bengali adaptation of VVIQ was administered on 134 male subjects from two semi-urban secondary schools in the district of Howrah, West Bengal. Of the 134 boys 11 were eliminated due to under age or over age or due to their inability to follow the instructions of VVIQ properly. From the 123 subjects, the first and the last quartile groups were taken as 'good' and 'poor' imagers, respectively. The middle 50 per cent cases were rejected. The poor imagery group consisted of 30 boys and the good imagery group consisted of 31 boys. To eliminate the sex differences subjects were restricted to boys only.

To equate the 'good' and 'poor' imagers with respect to intelligence Culture Fair Intelligence Test (Cattell and Cattell) was administered to these 61 pupils. Ten boys from 'poor imagers' and 11 boys from 'good imagers' were dropped from the experimental sample to equate the groups unless the treatment effect might be mediated through IQ.

Materials

Twenty passages of more or less equal length (approximately 1,000 words each) thought to have high or low overall imagery value were selected at random by the author with the help of two independent lecturers in Bengali from the works of 10 Bengalee authors taking two passages from each. Of the 20 passages initially chosen, 5 passages apparently of high overall imagery value and 5 apparently of low overall imagery value, were tentatively selected as more appropriate by the compilers. The selections comprised the following : (i) Bibhuti Bhushan, (ii) Sarat Chandra, (iii) Bankimchandra, (iv) Rajkrishna, (v) Pravat Mukhopadhyay, (vi) Tarasankar, (vii) Rabindranath, (viii) Probodh Sanyal, (ix) Mujtabali, and (x) Annadasankar.

The overall imagery values of the 10 passages were rated by two groups of voluntary raters on a three-point high-low imagery scale following the very similar procedure described by Paivio (1968). The seven-point scale of Paivio was, however, changed to a three-point scale. The instructions used were the simplified modified Bengali version of the instructions used by Paivio which reads as follows :

Passages large or small differ in their capacity to arouse overall mental imagery of things and events. Some passages arouse overall mental pictures of the subject-matter content easily and quickly, whereas others

may do so with difficulty (i.e. after a delay) or not at all.

Read each of the accompanying passages once. Your task is to rate the subject-matter of the passages as to the ease or difficulty with which they arouse overall mental imagery of the subject-matter.

Against each title of the passage in a separate list there are H, A and L; where H stands for High imagery, A for Average imagery and L for Low imagery.

Any passage, which in your estimation, arouses mental image easily and quickly (reading the whole passage once) should be rated as high imagery. Please make your rating by putting a circle around H; any passage that arouses mental picture with difficulty or not at all should be considered as Low imagery and put a circle around L. In such cases, any passage that is intermediate in ease or difficulty of imagery should be rated as Average and rating should be indicated by putting a circle around A.

Please read each passage once and rate them according to the ease or difficulty with which they arouse mental pictures.

Both the groups of raters were instructed to take their time in rating the passages. They were told to read each passage at a time. The first group of raters ($N=22$) were the male students of Class X of a semi-urban community, a type of population on which the subsequent experiment drew its sample. The second group ($N=10$) was composed of senior Lecturers and Readers in Psychology of the Calcutta University. This group served as a means of corroborating the ratings of younger group. The significance of rating in each case was tested by chi-square test (Siegal 1956). The two passages, one rated as high overall imagery value and the other as low overall imagery value by both the groups of raters were selected for the experiment (Tables 1 and 2).

Two comprehension tests (I and II), on four alternative multiple choice format were constructed from the subject-matter content of the selected passages (High and Low imagery value) by the author with the assistance of two independent senior Lecturers in Bengali after repeated editorial revisions. Both the tests consisted of 24 items.

Procedure

Selected passages (H and L) were recorded on a tape by a male professional school teacher. The experiment was conducted in a regular classroom but not during regular lecture hours. Subjects were informed that they were about to participate in a learning experiment in which they would be listening to two passages containing a narrative. They were forewarned that their task was to remember carefully the subject-matter

content of the passage to answer questions on it (they have to answer some questions on the subject-matter of the passages).

The passages (H and L) were then presented to both the imagers (good and poor) in two separate sessions with an interval of about 40 minutes. Each of the passages was played twice. As soon as the presentation of each of the passages was complete, the subjects were asked to complete the test questionnaire. In order to test the nature and sources of variances in the scores two-way ANOVA was applied which was followed by t-test for testing individual hypotheses.

Results and Discussion

The results of the ratings of the passages by two groups of raters are presented in Tables 1 and 2.

TABLE 1
FREQUENCY OF IMAGERY RATINGS BY STUDENTS (N = 22)

Passage	H	L	T
1	8	12	2
2*	13	7	2
3	6	9	7
4	2	10	10
5	4	11	5
6	3	7	12
7	12	9	1
8	2	6	14
9	7	8	7
10	5	11	6
<hr/>			
χ^2 32.6,	df 18,	p = .05	

*Selected for high imagery material

The chi-square values in the two cases (for students 32.06 and experts 53.34) were found to be significant at .05 and .01 levels of confidence respectively. This indicated that the concentration of the raters on certain points of scale for particular passage was not merely a matter of chance. The mean imagery score for the good imagers was 44.63 with standard deviation 5.58 and that for the poor imagers the mean and standard deviations were 92.5 and 8.52 respectively (poor imagers score high in vviq). The wide difference between two means clearly indicated that the good imagers were significantly different from the poor imagers in imagery capacity as measured by vviq.

TABLE 2
FREQUENCY OF IMAGERY RATINGS BY EXPERIMENTAL GROUPS

Passage	H	1	2
1	3	4	2
2	6	3	1
3	1	6	1
4	1	5	4
5	1	7	2
6	1	2	2
7	5	4	1
8*	1	2	1
9	3	3	1
10	3	5	2
$\bar{X}=53.34$, $df=18$, $p=.01$			

*Selected for low imagery material

The mean IQ and the respective standard deviation for the good and poor imagers have been shown in Table 3.

TABLE 3
MEAN IQ AND SD OF THE EXPERIMENTAL SAMPLE

	Good imagers	Poor imagers
Mean	95.54	87.80
SD	3.93	4.06
N	20	20
$t=1.81$, $p>.05$		

The results showed that there was no significant difference between the two groups with respect to intelligence as measured by Cattell's Culture Fair Intelligence Test.

Table 4 presents the mean scores and the corresponding standard deviations of each of the two groups of imagers (good and poor) in each of the two types of materials (high and low).

TABLE 4
MEAN AND SD OF THE FINAL EXPERIMENTAL SCORES

	GOOD IMAGERS		POOR IMAGERS	
	High material	Low material	High material	Low material
Mean	10.20	8.05	9.53	7.95
SD	2.20	1.91	1.96	2.34
N	20	20	20	20

The results of ANOVA have been presented in Table 5.

TABLE 5
RESULTS OF THE ANALYSIS OF VARIANCE FOR THE TWO GROUPS
OF SUBJECTS AND TWO TYPES OF MATERIAL

Source of variance	Sum of squares	Degree of freedom	Mean square of variance	F ¹
Material	84.07	1	84.07	20.11*
Group	16.57	1	16.57	3.96
Interaction	12.25	1	12.25	2.93
Within set	318.05	76		
Total	430.94	79		

*Significant at .01 level

¹Critical values for F: at .05 level = 3.97; at .01 level = 6.99

From the results of ANOVA, it appears clearly that the differences in the scores obtained in this experiment are due to the difference in the learning materials and not due to the individual differences in imagery nor due to the interaction of the two.

To test the mean differences t-test was performed which are given in Table 6.

TABLE 6
RESULTS OF T-TEST OF THE HYPOTHESES

Hypotheses	t-values	Level of significance
1	3.26	$p < .01$
2	2.32	$p < .05$
3	.99	$p > .05$
4	.15	$p > .05$
5	3.13	$p < .01$
6	2.46	$p < .01$

From the results of the t-test (Table 6) it appears that the expectation that the performance of the good imagers with the high imagery material would be better than the poor imagers with the low imagery material was not found to be true. The t-values of the first two hypotheses (3.26 and 2.32 respectively) suggest the both good and poor imagers learned better from the high imagery material. This finding is in congruence with the findings of Paivio (1971) with high and low imagery words as learning materials, Cunningham (1972) with image-evoking sentences and Yuille and Paivio (1969) with image-evoking short prose passages obtained the same results.

The t-values of hypotheses 3 and 4 (.99 and .15 respectively) indicate that there is no significant difference between good and poor imagers with reference to learning of high or low imagery materials.

Despite the greater effects of the interactional hypotheses 5 and 6 ($t=3.13$ and $t=2.46$ respectively), the previous findings of the hypotheses 3 and 4, i.e. there is no significant difference between the good imagers with high imagery material and poor imagers with low imagery material, it may be suggested that the difference is due to the material (H and L) and not due to imagery groups. This is in conformity with the findings of Marks who obtained in an unpublished study that high and low imagery subjects as assessed by VVIQ did not differ in their recall of words which were either high or low in imagery level (from personal communication).

The general educational implication of this study for the teacher, author and curriculum-developer is that the image-evoking value of the learning materials should receive greater importance while planning textbooks, classroom lessons, etc.

References

- Bower, G.H. Mental imagery and associative learning. In L. Gregg (Ed.) *Convention in learning and memory*. New York: Wiley, 1972.
- Bugelski, B.R. Words and things and images. *American Psychologist*, 1970, 25, 1002-1012.
- Bugelski, B.R., Kidd, E. and Segman, J. Image as a mediator in incidental paired-associate learning. *Journal of Experimental Psychology*, 1968, 76, 69-73.
- Cunningham, D.J. The effects of verbal, imaginal and rote instructional sets on the learning of concrete and abstract sentences. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 1972.
- Gallot, F. *Inquiries into human faculty and its development*. London: Macmillan, 1883.
- Marks, D.F. Individual differences in the vividness of visual imagery and their effect on function. In P. Sheehan (Ed.) *The function and nature of imagery*. New York: Academic Press, 1972.
- Marks, D.P. Visual imagery differences in the recall of pictures. *British Journal of Psychology*, 1973, 64, 17-24.
- Montague, W.E. and Carter, J.F. Vividness of imagery in recalling connected discourse. *Journal of Educational Psychology*, 1973, 64, 72-75.
- Paivio, A. Mental imagery in associative learning and memory. *Psychological Review*, 1969, 76, 3, 241-263.
- Paivio, A. *Imagery and verbal processes*. Holt, Rinehart & Winston, 1971.
- Reese, H.W. Imagery and contextual meaning. In H.W. Reese (Chm.) *Imagery in children's learning: A symposium*. *Psychological Bulletin*, 1970, 73, 404-414.
- Richardson, A. *Mental imagery*. New York: Springer, 1969.
- Rohwer, W.D. (Jr) Images and pictures in children's learning: Research results and instructional implications. In H.W. Reese (Chm.) *Imagery in children's learning: A symposium*. *Psychological Bulletin*, 1970, 73, 393-403.
- Sheehan, P.W. Individual differences in vividness of imagery and the function of imagery in incidental learning. *Australian Journal of Psychology*, 1971, 23, 279-288.
- Yuille, J.C. and Paivio, A. Abstractness and recall of connected discourse. *Journal of Experimental Psychology*, 1969, 82, 467-471.

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Dimensions of School Climate

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THE CONCEPT OF ARGYRIS which treats organization as personality is the concept of organizational climate which embraces the milieu of personalities—principal and teachers, interacting within the sociological and psychological framework of an institution such as the secondary school. Climate may be pictured as a personality sketch of a school, as personality describes an individual, so climate defines the essence of an institution. Personality is relatively stable over a period of time but it can change and so is with organizational climate. Personality is complex hence organizational climate being composed of the interaction of diverse individual personalities is, indeed, a broad multi-faceted idea.

Brown (1965) conceived organizational climate as cathetic patterns giving identity to sub-groups and the interpersonal relations in a living organization. Halpin and Crofts (1963) crisply stated that personality is to the individual what organizational climate is to the organization.

Sharma (1971) after analysing the definitions given by different authors says that organizational climate may ultimately be defined in terms of interaction that takes place between organizational members as they fulfil their prescribed roles while satisfying their individual needs. Furthermore, he specifies that school climate is the resulting condition within the school, social interaction among the teachers and between the teachers and the principal.

The Problem

The impetus for this study came from the belief that schools vary considerably in their 'climates' and that it can be hypothesized that school climate is one of the important variables which explain differences among the performance levels of schools. Needless to say, as any teacher or administrator or any individual goes from one school to another he is struck inexorably by the differences he encounters in the organizational

climate of schools. Do these differences really exist ?, that is, are they observable on an instrument devised to measure organizational climate ? Or, are they exclusively subjective and are indeed, coloured by the observer's perceptions ? This study explores into the dimensions of school climate.

Objectives

The major objective of the present investigation was to replicate the study of Halpin and Crofts (1963) and thus examine the applicability of ocdq (Organizational Climate Description Questionnaire) in a different cultural and organizational pattern. It was of interest to see if dimensions extracted on the basis of the data collected from Rajasthan schools' sample would be the same as extracted in Halpin and Crofts' study.

Sample and Collection of Data

The stratified two-stage sampling was used to draw the sample of the study. The sample of the present investigation constituted 100 secondary schools drawn from 10 randomly selected educational districts. Out of these 100 secondary schools, five schools did not participate in the investigation at the time of data collection. Therefore, the investigation was conducted on the sample which constituted 95 secondary schools.

The investigator started with the 64 Likert-type items of ocdq which Halpin and Croft (1963) perfected and which could be used by teachers and principals to describe the climate of their schools. In the light of differences in terms of culture and organizational structure of schools in the USA and India, the investigator modified the statements in terms of language and behaviours. This modified Hindi version of ocdq was used for the present investigation. This questionnaire was administered to 1915 teacher-respondents of 95 secondary schools of Rajasthan, the sample selected for the study. The respondents were asked to indicate the extent to which each statement characterized his school. The scale against which the respondent indicated the extent to which each statement characterized his school was defined by four categories : (i) rarely occurs, (ii) sometimes occurs, (iii) often occurs, and (iv) very frequently occurs. For scoring purposes these categories were assigned four successive integers 1, 2, 3 and 4. Thus, the responses were punched as 1, 2, 3 and 4 for computerization of the data. This was an arbitrary choice.

Analysis of OCDQ at Item Level

The first step in the analysis was to identify various groups or clusters

of items which correlate highly with items within the group than with items outside the group. The basic assumption underlying this approach was that the group of items so identified would each represent a major but different pattern of behaviour. For the derivation of such major groups of items or dimensions, more or less the same procedures were followed, as in Halpin and Crofts' (1963) study.

First of all, a 64 x 64-item intercorrelation matrix based on the respondents' (N=1,915) item scores was computed. For factor analysis of this item intercorrelation matrix principal component method was applied.

The major objective of this study was replication of an experiment conducted in a different culture and to obtain a set of factors each of which could be identified by a group of items. In the original study by Halpin and Crofts (1963), a set of eight-factors was identified and the groups of items identifying each factor formed the sub-tests mentioned earlier. To accomplish this objective of the present study, two basic steps were necessary. First, the number of factors that could be considered sufficiently important to be examined further had to be determined. Secondly, these factors had to be rotated to facilitate the interpretation of the factors on the basis of the items that identified them.

In computing the factor solution the practice recommended by Kaiser (1960) and followed by Halpin and Crofts (1963) in their study of introducing the value 1.00 as the diagonal element of the correlation matrix instead of the estimated communalities was followed. Associated with each of the initial factors in the analysis is an eigen-value, which among other things, describes the amount of variance a factor accounts for. Only factors that had eigen-values greater than 1.00 were considered for further examination. This analysis produced 11 such eigen-values. Together they accounted for 53 per cent of the total variance represented in the items. Kaiser suggested an arbitrary standard of an eigen-value 1.00 as the point at which one should stop factoring, since factors with eigen-values less than 1.00 are too small to be given any meaningful interpretation. Moreover, when factors with eigen-values less than 1.00 are included in the rotational solution, the simple structure of the factor often becomes distorted. Thus, the 11-factor solution was applied and factor loadings were calculated. This solution was rotated by the varimax procedure and examined for interpretation. The factor loadings represented the extent to which the various items are related to a given factor. The loadings are the basis for grouping a set of items. Table 1 can be interpreted to mean that all the items listed under a given factor have something in common that influences responses to those items. This 'thing' common to the set of items is what we assume to be the factor. The higher the loading

value for an item on a factor, the stronger the relative influence of that factor on the response to that item. In interpreting a factor the investigator examined the items grouped together, and taking into consideration the loading value, he attempted to infer the characteristic common to those items. Table 1 reports the item loadings on that factor for which the item had highest loading value.

At this stage the problem was, 'how to determine the number of factors?' One way of determining the number of factors is to plot the eigen-values and examine the plot for breaks in the curve (Cattell's Scree Test, 1968). The plot for this data is presented in the Figure on p. 41. The plot shows a break dividing the whole curve into two parts. One part is having three factors whereas the other part is having eight factors. Thus, one possibility was that there might be only three factors or there might be three higher order factors (general factors) and eight first order factors. Halpin and Crofts also found eight factors at item level. Therefore, eight-factor solution might be an expected solution at this stage. This would be the expected solution if the factor structure of the responses to OCDQ was the same or at least similar to the original structure. At this stage it was decided that first the sets which had resulted from 11-factor solution must be examined logically whether meaningful interpretation could be possible. An examination of these sets of items revealed that a few of the sets do not contain enough items to provide measurement that are as dependable as we might desire to form a factor and at the same time, in a few cases it was found that there is no common element among the items in a particular set. As such it was not possible to define the sets in terms of factors aimed at. The basis of this examination was a recourse to another solution. Therefore, eigen-values were again calculated. This analysis produced eight eigen-values. Together they accounted for 47 per cent of the total variance represented in the items.

Eight-factor Solution

The eight-factor solution was applied and factor loadings were calculated. This solution was rotated by the varimax procedure and examined for interpretation. Table 2 reports the item loadings on the factor for which the item had the highest loading value. A content analysis of the items with high factor loadings showed that each such factor represented a different dimension which could be interpreted meaningfully.

Identification of Dimensions

The factor structures of the present analysis was compared with that of the structure for eight-factors in the original study. In the case of four-

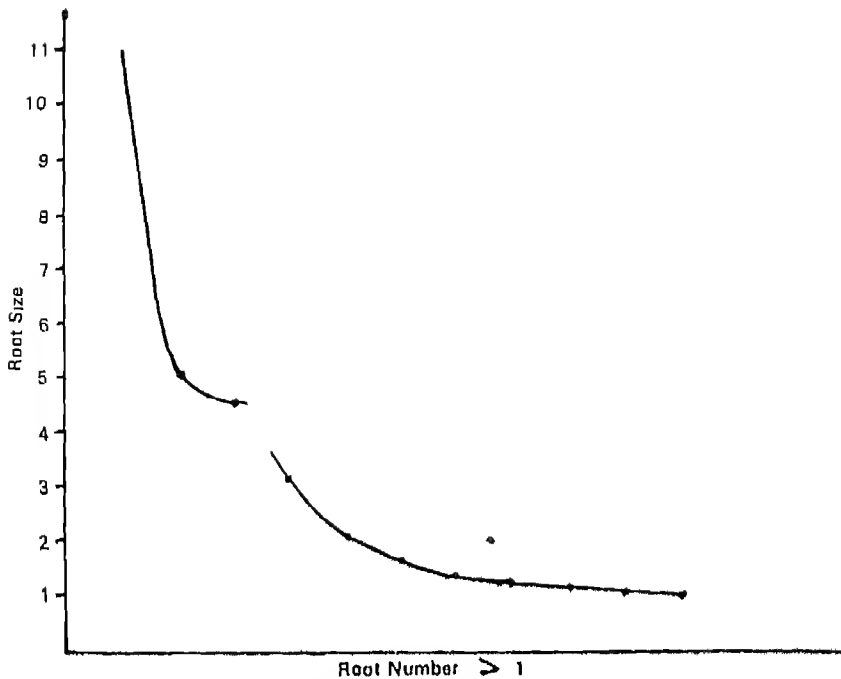
TABLE 1
ELEVEN-FACTOR VARIMAX ROTATIONAL SOLUTION

PRINCIPAL COMPONENTS SOLUTION

Item	I		II		III		IV		V		VI		VII		VIII		IX		X		XI	
	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item
51	0.65	43	0.57	1	0.67	27	0.61	34	0.42	17	0.63	39	0.44	11	0.53	37	0.42	8	0.39	15	0.62	
52	0.61	44	0.70	2	0.67	28	0.69	35	0.71	18	0.76	41	0.55	12	0.45	40	0.42	23	0.76	16	0.51	
53	0.58	45	0.72	3	0.68	29	0.73	36	0.72	19	0.74	42	0.70	13	0.67	50	0.45					
54	0.58	46	0.67	4	0.51	30	0.68	37	0.51	20	0.46			14	0.64							
55	0.73	47	0.60	5	0.74	31	0.64	38	0.56	21	0.54											
56	0.60	48	0.58	6	0.73	32	0.54			22	0.50											
57	0.62	49	0.45	7	0.73	33	0.50			24	0.67											
58	0.51			8	0.57					25	0.44											
59	0.72			9	0.49					26	0.38											
60	0.76			10																		
61	0.73																					
62	0.69																					
63	0.67																					
64	0.72																					
Eigen-values	10.85	4.93	4.54	3.11	1.97	1.77	1.74	1.24	1.21	1.12	1.03	0.93	0.83	0.73	0.62	0.53						
Proportion of Varimax	0.12	0.05	0.07	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01						

TABLE 2
EIGHT-FACTOR VARIMAX ROTATIONAL SOLUTION

	DISENGAGEMENT		ALIENATION		ESPRIT		INTIMACY		PSYCHO-PHYSICAL HINDRANCE		CONTROLS		PRODUCTION EMPHASIS		HUMANIZED THRUST	
	No	Load- ing	No	Load- ing	No	Load- ing	No	Load- ing	No	Load- ing	No	Load- ing	No	Load- ing	No	Load- ing
1	0.66	37	0.61	17	0.57	23	0.25	11	0.50	15	0.39	43	0.51	51	0.66	
2	0.66	38	0.36	18	0.73	27	0.60	12	0.47	16	0.43	44	0.65	52	0.63	
3	0.67	39	0.55	19	0.71	28	0.66	13	0.59	34	0.53	45	0.68	53	0.59	
4	0.49	50	0.37	20	0.50	29	0.71	14	0.60	40	0.54	46	0.66	54	0.61	
5	0.74			21	0.57	30	0.68	35	0.54	41	0.53	47	0.60	55	0.72	
6	0.72			22	0.53	31	0.63	36	0.53	42	0.55	48	0.60	56	0.60	
7	0.71			24	0.69	32	0.53					49	0.46	57	0.62	
8	0.43			25	0.44	33	0.53							58	0.53	
9	0.59			26	0.46									59	0.71	
10	0.51													60	0.74	
														61	0.71	
														62	0.67	
														63	0.63	
														64	0.69	
Eigen-values	4.47		1.96		1.77		3.11		1.25		1.51		4.97		10.76	
Proportion of Varimax	0.07		0.04		0.04		0.06		0.04		0.05		0.05		0.11	



Scree Test Showing Eight Factors

factors, namely, 'disengagement', 'esprit', 'intimacy' and 'production emphasis' the factor structure was found identical. These factors contained all the original items except for few exceptions. But in the case of the remaining four factors the items in ocbbq that comprised the four factors (hindrance, alienation, thrust and consideration) or such sub-tests in the original study by Halpin and Crofts did not, in the present study, show the same pattern. Therefore, in response to the first question, it was concluded that for Indian secondary schools the factor structure of ocbbq was not the same as that identified by the originators of the instrument.

The factor structure represented by the eight-factor solution lent itself to meaningful interpretation and was most plausible for the present data. As such the eight-factors solution was accepted and interpreted. What follows is an interpretation of the eight-factors and a discussion of the ways this factor structure differs from the original factor structure.

The critical task was to name and define these factors. As has already been mentioned in case of the sub tests (factors) 'disengagement', 'esprit', 'intimacy', and 'production emphasis', the factor structure remained the same as in the original study, in the case of these factors the names and

definitions given by Halpin and Crofts were accepted. However, the present investigator has attempted to further analyse these definitions. Four newly derived factors came up for nomenclature and definition. As a rule, a researcher while using a tool already developed does not take it upon himself to give new names to the dimensions identified by the author of the research instrument. However, because of the varying type of factor structure obtained, the restraint imposed by the sample, and the apparent 'unreality' of the factor structure for the present study the only choice was to rename and redefine the new factors. Definitions along with the explanations of all the eight factors are given below.

Definitions of Dimensions (Sub-tests)

I. Group Characteristics

1. *Disengagement* refers to the teachers' tendency to be 'not with it'. This dimension describes a group which is 'going through the motions' a group that is 'not in gear' with respect to the task at hand. It corresponds to the more general concept of anomie as first described by Durkheim. In short, this sub-test focuses upon the teachers' behaviour in a task-oriented situation (Halpin 1969, p. 150).
2. *Alienation* refers to the behaviour patterns among the group (faculty), including the leader (the principal), which are characterized as highly formal and impersonal. It reveals the degree to which the principal 'goes by the book' and adheres to policies rather than dealing with the teachers in an informal, face to face situation. It also indicates the emotional distance between the group and the leader, and at the same time, among the group members (Sharma 1973, p. 199).
3. *Esprit* refers to morale. The teachers feel that their social needs are being satisfied, and that they are, at the same time, enjoying a sense of accomplishment in their job (Halpin 1969, p. 151).
4. *Intimacy* refers to the teachers' enjoyment of friendly social relations with each other. This dimension describes a social needs satisfaction which is not necessarily associated with task-accomplishment (Halpin 1969, p. 151).

II. Leader Behaviour Characteristics

5. *Psycho-physical hindrance* refers to the feeling among the group members that the principal burdens them with routine duties, management demands and other administrative requirements which they consider as unnecessary. At the same time they

perceive the principal as highly dictatorial in his behaviour. He is not adjusted to feedback from the staff, his style of communication tends to the unidimensional (Sharma 1973, p. 204).

6. *Controls* refer to the degree to which the principal's behaviour can be characterized as bureaucratic and impersonal in nature; although task-oriented in behaviour, the extent to which he tries to raise the degree of effectiveness and efficiency by helping the group work towards the common goal by providing adequate operational guidance and secretarial services (Sharma 1973, p. 205)
7. *Production emphasis* refers to behaviour by the principal which is characterized by close supervision of the staff. He is highly directive and plays the role of a 'straw boss'. His communication tends to go in only one direction, and he is not sensitive to feedback from staff (Halpin 1969, p. 151).
8. *Humanized thrust* refers to the behaviour of principal which is marked by his attempts to motivate the teachers through personal example. He does not ask the teachers to give themselves any more than they willingly give of themselves. The behaviour of the principal, though unmistakably task-oriented, is at the same time characterized by an inclination to treat the teachers humanly and tender-heartedly. He attempts to do something extra for them in humanistic terms, and consequently his behaviour is viewed favourably by the teachers (Sharma 1973, p. 209).

Conclusion

Concluding the above discussion, it can be stated that there was nothing particularly startling in the fact that the structure in the case of the four identified factors was not the same as in the original study. This was expected because of the difference in the characteristics of the two samples and difference in culture of the two populations from which these samples were drawn. Organizational structure and the administrative patterns were also different in both cases. What was not expected, however, was the combination of the two factors, namely, 'thrust' and 'consideration' which have appeared as one factor, 'humanized thrust', in the present study. Except the one item of 'thrust' all other items of both 'thrust' and 'consideration' dimensions have combined and appeared as one set. This is the result of the difference in the two samples in terms of organizational structure and administrative patterns. This was also found by Mehra (1968).

These results indicate that different kinds of influences affect the Indian teacher's perceptions of their schools. These influences result in a realign-

ment of the factor structure of ocnq in the Indian situation. This realignment seems to be associated with the unique Indian situation within which the teachers work. Of specific importance here are those aspects of the Indian schools which are concerned with the headmasters' behaviour. In the original study, 'aloofness' was one of the dimensions of leader behaviour whereas in the present study it (alienation) has appeared as a member of group behaviour characteristics. Halpin and Crofts defined 'aloofness' in terms of behaviour on the part of the headmaster whereas in the present study, it has been re-defined in terms of 'alienation', which the present investigator interprets in terms of a group behaviour dimension where the leader is also a group member. Secondly, in the original study by Halpin and Crofts 'hindrance' included only such things that were related to the physical aspect of work conditions whereas in the present study both psycho-physical conditions have been combined together, thus increasing the scope of this dimension.

Therefore, in response to the question whether in the Indian school setting, the factor structure of ocnq as identified by the present investigator is the same as by the originators of the instrument, it can safely be said on the basis of these results that except in the case of the dimension, 'disengagement', 'esprit', 'intimacy' and 'production emphasis' dimensions the factor structure is not the same as it was in the original study. But this does not mean that the factor structure identified in the original study was defective or not meaningful. The implication is, however, that the factor structure obtained in this study is different from the original factor structure in terms of the sets of items. It can also be said that at this stage it is difficult to arrive at any definite conclusions as regards the reasons for different groupings of the ocnq items in the two studies—the present study and the original study by Halpin and Crofts. It can only be said at this stage that it could be due to differences in the culture and organizational structures of the schools in the two studies. Or, it could be that Halpin and Crofts' sample of schools, not being a properly selected random sample, does not represent the population of schools. At the same time, it is important to note that the conclusions drawn in this study are very similar to those of Mehra (1968) and Pyra (1965). In the case of Mehra, the sample was drawn from Indian schools whereas Pyra conducted his study on schools from Canada. The sample of the present study was similar in culture and organizational pattern to that of Mehra's study whereas the sample of Pyra's study was similar in culture and organizational structure to the one in the United States. Pyra (1965, p. 122) writes about the sub-tests formed in Halpin and Crofts' study: The findings indicated that there may be some discrepancies between given definitions

of the sub-tests and results obtained in empirical utilization. Thus, the present study finds support both theoretical and empirical.

References

- Argyris, Chris *Personality and organization*. New York : Harper and Row, 1957
- Brown, Alan Two strategies of changing climate. *The CSA Bulletin*, July 1968
- Cattell, Raymond B The meaning and strategies of factor analysis. In R. B. Cattell (Ed.), *Handbook of multivariate experimental psychology* Chicago : Rand McNally, 1968
- Halpin, A.W. and Crofts, Don B. The organizational climates of schools. *Administrator's Notebook*. XI(7), 1963
- ✓ Halpin, A. W *Theory and research in administration* London : The McMillan Co., Collier McMillan Ltd., 1969
- Kaiser, Henry F Comments on communalities and the number of factors. Paper read at an Informal Conference on the Communality Problem in Factor Analysis, held at the Washington University, St. Louis, 14 May 1960
- ✓ Mehra, N Organizational climate of secondary schools, State of Delhi, India. Unpublished doctoral dissertation, University of California at Berkeley. *Dissertation Abstracts International*, 1968, 29, 100 A
- ✓ Pyra, Joseph Fredrick. A study of relationships between school climate characteristics and student attitudes toward the school. Unpublished master's thesis, Edmonton : University of Alberta, 1965
- ✓ Sharma, Motilal. School organizational climate : An overview. *Indian Educational Review*, VI, (2), 1971
- Sharma, Motilal. An investigation into organizational climate of secondary schools of Rajasthan. Unpublished doctoral thesis. Baroda : M.S. University, 1973
- Sharma, Motilal. School climate and the role of school administrator : A systems analysis *Indian Educational Review*, X, (1), 1975
- ✓ Sharma, Motilal *Technical handbook for school organizational climate description questionnaire*. Sardar Shahr Mrs. S. Sharma, 1978

Changing Pattern of Interpersonal Relationship in Adolescent Boys and Girls

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One of the most noticeable social change amongst school-going boys and girls is the frequency of changing friendship relations. The present study was undertaken to ascertain the relationship between sociometric choice status and friendship fluctuation in educational situation. It was hypothesized that sociometric choice status would be inversely related to friendship fluctuation. The study was conducted upon 405 male and female students of Class VIII of higher secondary schools. Highly chosen boys and girls showed greater stability in friendship relations, while the poorly chosen group exhibited lesser stability in friendship relations.

THE CHANGING PATTERN of interpersonal relationship constitutes one of the most interesting problems in social psychology. A good number of research works reveal that the factors that contribute towards formation and maintenance of friendship relations are personality (Austin and Thompson 1948), changing social climate (Kuhlen and Houlihan 1965) similarity of interests and taste (Austin and Thompson 1948), age (Horrocks and Thompson 1946, 1947), to name only a few.

Previous studies in friendship fluctuation (Horrocks and Thompson 1946, 1947) revealed that the stability of friendship relation during adolescent years was an increasing function of chronological age. When the children first come to school they constantly interact with each other and seek acceptance of others. They may take a little time to settle down and establish relations in the new set up. As time passes on, the peers learn to develop acceptable social behaviour which results in gaining social acceptance and maintaining friendship relations. But individual

differences are there in acquiring such social skills. Some individuals may develop such skills in formation and maintenance of stable friendship relations, while others may not learn to maintain stable qualities in their interpersonal relationship.

In view of the aforesaid discussion, it may be assumed that individuals developing acceptable social behaviour for formation of friendship relations will be able to maintain stable friendship relations in future. Hence, the degree to which individuals will maintain stable friendship relations with their chosen friends will depend upon their degree of social acceptance.

Under the assumption, enumerated above, it was hypothesized, for the present study, that sociometric choice status would be inversely related to the friendship fluctuation score. That is, the higher would be the sociometric choice status the lower would be the friendship fluctuation score and vice versa.

Method and Procedure

Subjects

Samples were drawn from 14 Class VIII sections of 10 higher secondary schools selected from different localities of the urban area of Agartala. In the first testing situation, i.e. in the first week of February 1976, 447 students out of 539 on the roll strength were present, of which 207 and 240 were boys and girls, respectively. On the second occasion, i.e. early in the month of June 1976, the number of students present was 460, of which 210 were boys and 250 were girls. The number of subjects found to be present in both the testing situations was 405, of which boys and girls were 187 and 218, respectively. As inevitable in a school situation, the samples of the two occasions varied due to so many causes, like, admission of new students, transfer of students to other schools during the session, absence, etc. The subjects found to be common in both the testing situations were considered for this investigation.

Ages of 187 boys present on both the occasions, ranged from 12 years through 16 years, with mean of 13.70 and *sd* of 1.27; and those of 218 girls ranged from 11 years through 15 years with mean of 12.82 and *sd* of 1.03. The mean age of the combined sample was found to be 13.22 with *sd* of 1.16. The break-up of the samples according to age and sex is presented in Table 1.

Procedure

In order to obtain a picture of the pattern of interpersonal change of different sociometric choice status groups, it had been decided to administer the sociometric questionnaire (Biswas 1977) twice to the same group

TABLE 1
AGE AND SEX OF THE SUBJECTS

<i>Age</i>	<i>Boys</i>	<i>Girls</i>	<i>Combined</i>
11	0	16	16
12	29	74	103
13	55	77	132
14	61	35	96
15	28	16	44
16	14	0	14
Total	187	218	405
Mean	13.70	12.82	13.22
SD	1.27	1.03	1.16

of subjects of the selected institutions at an interval of 16 weeks. The sociometric questionnaire was administered in the first week of February 1976 and thereafter (i.e. second time) in the first week of June 1976.

The reasons for administering the sociometric questionnaire for the first time after one month of the commencement of the academic year was that the students generally coming from junior schools would take some time to get themselves acquainted with the peer groups and to settle down. Moreover, interpersonal relationships already developed between older groups of students promoted from junior class or coming from same junior schools, would break up due to admission of new students coming from different schools, transfer of old students to other schools, failure and drop-outs, and consequently, a new group atmosphere would be created to which the individuals would take some time to settle down.

The same sociometric questionnaire was again administered on the same group of students for the second time after 16 weeks to ascertain the friendship fluctuation index of each subject. Such a time was allowed under the assumption that it would not permit either too short or too prolonged interaction between the group members.

The subjects had been asked to write their personal data in the space provided. Thereafter, the instructions, given below, had been read aloud by the investigator, while the subjects read them silently.

Instructions

Names of your three most intimate friends of your class, i.e. names of those whom you like most, are wanted. Please write three names of your most intimate friends in order of your choice.

On the second testing situation the procedure remained the same as before, except, in addition to usual instructions, the following sentences had been read out to the subjects :

INTERPERSONAL RELATIONSHIP IN ADOLESCENT BOYS AND GIRLS

Your most intimate friends, now, may or may not be the same whom you chose four months ago. This time you are to write the names of those you prefer most now.

Results

In determining the sociometric choice status of individual subjects unweighted scoring method had been adopted as there was no significant difference between weighted and unweighted sociometric scoring (Kundu and Biswas, forthcoming). Sociometric choice status of individual subjects was determined according to Bronfenbrenner's 'constant frame of reference' (1945). The subjects had been classified into five sociometric choice status groups according to their critical raw status scores as shown in Table 2.

TABLE 2
CLASSIFICATION OF SOCIOMETRIC CHOICE STATUS

<i>Critical Raw Status Score</i>	<i>Sociometric Choice Status</i>
7 and above	Popular
4- 6	Above average
3	Average
1- 2	Below average
0	Isolate

In order to ascertain an individual's friendship fluctuation index (i.e. changes made by the subject in choosing his most intimate friends on the second occasion from those chosen on the first occasion), score 1 had been assigned to each new name added in the second testing situation, replacing the old ones chosen in this first test, without assigning an weightage. Thus, the total number of changes in the choices given in the second situation would give the friendship fluctuation index. For example, an index of 0 would indicate no change; 1—one change, i.e. one new name; 2—two changes, i.e. two new names; and 3—three changes, i.e. all new names. The procedure for determining friendship fluctuation index has been shown in Table 3.

TABLE 3
DETERMINING FRIENDSHIP FLUCTUATION INDEX
NAME OF SUBJECT MR. X

<i>Name of friends chosen in</i>		<i>Friendship fluctuation index</i>
<i>First test</i>	<i>Second test</i>	
B	D	2
D	C	
E	E	

Before analysing the data for testing the hypothesis, chi-squares were

computed, using Kolmogorov-Smirnov two sample tests (Siegel 1956), to ascertain whether there would be any sex difference in each of the two variables, viz sociometric choice status and friendship fluctuation index.

The chi-squares of .177 and 3.18 of the variables, sociometric choice status and friendship fluctuation index respectively, did not signify any sex difference. Hence, instead of analysing the data separately for boys and girls, total sample of boys and girls had been considered.

Thereafter, in order to determine whether different sociometric choice status groups were drawn from the same population with respect to friendship fluctuation indices, the chi-square test had been made arranging the data into $r \times k$ contingency Table. The chi-square, thus computed, was found to be 113.87 (significant beyond .001 level). This indicated that different sociometric choice status groups differed significantly in friendship fluctuation indices.

The cell-square contingencies (see Table 4), showing $(f_o - f_e)^2 / f_e$, provided two-way analysis of the over-all predictive value of the chi-square.

TABLE 4
CELL-SQUARE CONTINGENCIES SHOWING SOCIOMETRIC CHOICE
STATUS GROUPS' DIFFERENCES IN FRIENDSHIP FLUCTUATION

Friendship fluctuation groups	Popular	Above average	Average	Below average	Isolate	Total (Chi-square)
0	22.5732	5.5562	1.3370	3.7097	3.6238	36.7999*
1	2.5175	2.0333	2.3220	1.8351	4.2666	12.9745**
2	3.6588	0.1096	0.7177	0.8254	2.5453	7.8168****
3	7.4100	12.6438	3.6437	3.0311	29.5214	56.2500*
Total (Chi-square)	36.1595*	20.3429**	8.0204***	9.4013***	39.9417*	113.8712*
Level of significance : * —.001 level, ** —.02 level, *** —.05 level and **** —.30 level.						

In Table 4, the column-square contingencies, indicating the degree of significance to be attached to respective choice status groups, revealed that friendship fluctuation indices of the popular and the above-average groups were significantly small (in both the cases, departure from null-hypothesis, with $df=3$, were significant beyond .001 level). On the other hand, friendship fluctuation indices of the isolates were significantly high as the chi-square of 39.9471 was significant beyond .001 level. The chi-squares of the average and the below average groups were found to be moderately significant (.05 level). Thus, friendship fluctuation indices of these two sociometric choice status groups appeared to be moderately high.

The row-square contingencies of Table 4 indicated the degree of significance to be attached to respective friendship fluctuation groups. The

extreme fluctuation groups, i.e. fluctuation groups 0 and 3 showed significant departure from null hypothesis (chi-squares significant beyond .001 level in both the groups). Sociometric choice status of the fluctuation group 0 was found to be significantly high, and that of the fluctuation group 3 was found to be significantly low. Sociometric choice status of the fluctuation group 1 was found to be moderately high (chi-square of 12.9745, significant at .02 level). However, the fluctuation group 2 did not show significant departure from null hypothesis (chi-square 7.8468, significant at .10 level),

The contingency coefficient, computed from chi-square, and the coefficient of correlation between sociometric choice status score and friendship fluctuation index were found to be .4686 and -.4704 respectively. The negative correlation coefficient indicated inverse relationship between sociometric choice status and friendship fluctuation. That is, high sociometric choice status groups showed less fluctuation in friendship selection on a subsequent occasion than the low sociometric choice status groups.

Finally, in order to determine the extent to which friendship fluctuation indices of different sociometric choice status groups would differ from each other group, chi-square test, using Kolmogorov-Smirnov two sample test (Siegel 1956) had been made. Chi-squares, thus computed and presented in Table 5, were highly significant between the extreme sociometric choice

TABLE 5
MULTIPLE COMPARISON OF CHI-SQUARES SIGNIFYING THE DIFFERENCES IN FRIENDSHIP FLUCTUATION INDICES BETWEEN EACH OF THE SOCIOMETRIC CHOICE STATUS GROUPS

<i>Sociometric choice status groups</i>	<i>Above average</i>	<i>Average</i>	<i>Below average</i>	<i>Isolate</i>
Popular	7.1055***	11.3322**	31.4086*	36.8257*
Above average		2.4720****	17.4036*	41.4976*
Average			6.1756***	27.0140*
Below average				16.1625*

Level of significance : * - .001 level, ** - .01 level, *** - .05 level and **** - .10 level.

status groups, and moderately significant between the adjacent groups, except in cases of above average and average, and below average and isolate. Chi-square of 2.4720 between above average and average groups was not significant at .05 level, and that of 16.1625 between below average and isolate groups was significant beyond .001 level. These indicated that the average sociometric choice status group showed considerable stability in friendship relation, while the isolate group showed maximum fluctuation in friendship relation within the group, Horrocks and Benimolf (1966), in a study on the entire student body of senior and junior schools also

observed that adolescents who received, at any one time, no nomination as a friend, showed much fluctuation from time to time.

Discussion

It had been established from the results that sociometric choice status is inversely related to friendship fluctuation. High sociometric choice status groups exhibited low friendship fluctuation than the low sociometric choice status groups. It means that highly acceptable individuals or groups will be able to maintain stable friendship relations to a greater degree than the individuals or groups who are not well accepted. Horrocks and Bucker (1951), in their studies with pre-adolescents, did not, however, find any relationship between social acceptance and friendship fluctuation. On the other hand, Horrocks and Benimoff (1966), in their study upon adolescents, observed that highly chosen subjects tended to maintain stable friendship relations. Hence, the findings of the present investigators corroborate with that of Horrocks and Benimoff (1966).

Conclusions

From the findings of the present investigation it may be concluded that (i) high social acceptance increases stability in friendship relations, while low social acceptance decreases such stability, and (ii) individuals who make frequent changes in selection of friends also tend to loose social acceptance than those who make fewer changes in friendship relations.

References

- Austin, M.C. and Thompson, G.G. Children's friendship : A study of the bases which select and reject their best friends. *Journal of Educational Psychology*, 39, 101-116, 1948
- Biswas, C. Interpersonal relationship in classroom situation as reflected on social desirability scale. Unpublished Ph. D. dissertation, Calcutta University, 1977
- Bronfenbrenner, U. The measurement of sociometric status, structure and development. *Sociometry Monograph*, No. 6, 1945
- Horrocks, J.E. and Benimoff, M. Stability of adolescents' nominee status over one year period as a friend by their peers. *Adolescence*, 1(3), 224-229, 1966
- Horrocks, J.E. and Bucker, M.E. A study of friendship fluctuation of pre-adolescence. *Journal of Genetic Psychology*, 78, 131-144, 1951
- Horrocks, J.E. and Thompson, G.S. A study of friendship fluctuation of rural boys and girls. *Journal of Genetic Psychology*, 69, 189-198, 1946
- Horrocks, J.E. and Thompson, G.S. A study of friendship fluctuation of urban boys and girls. *Journal of Genetic Psychology*, 70, 53-63, 1947
- Kuhlen, R.G. and Houlthan, N.B. Adolescent interest in 1942 and 1963. *Child Development*, 36, 1049-1052, 1965
- Kundu, R. and Biswas, C. (Forthcoming). Weighted versus unweighted sociometric scoring. *Psychological Studies*, Communicated for publication in May 1978
- Siegel, S. *Non-parametric statistics in behavioral sciences*. N.Y. : McGraw-Hill Book Company, Inc., 1956

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Second Language Acquisition : Pidginization/Creolization Hypothesis

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IT WOULD NOT BE OUR PLACE to touch upon some of the other hypotheses that are prevalent about second language acquisition. The first hypothesis is that learning the second language is like learning the first language in learning processes in several respects. Ervin Tripp (1974) conducted a study in Switzerland on learning French by English speakers in natural surroundings. The study showed that in many respects the development of comprehension of syntax and of morphological features follows the order in the mother tongue studies. Children of older ages learned much faster than younger ones for the sample in the range of four through nine. Some of her findings can be summarized below :

- (a) Second language learners, like children, learn best the items they can interpret.
- (b) The basic preference of the child at first is for a principle of one meaning, one form and he rejects two forms for what appears to be an identical meaning or referential situation.
- (c) The first features of sentences to be used in comprehension rules are those which survive in short-term memory test.
- (d) The hypothesis that children process second language sentences through translation is not borne out by this study.

Paul Huggan's studies of a Chinese child learning English showed sentences much like native speaker English : "This kite", "Two cat", "No candy", "No more truck". Ravem (1968) studying a Norwegian child learning English and Kesselman studying French children found that in English they placed the negator before the verb, though the negator follows the main verb in both Norwegian and French.

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d' Anglejan and Tucker (1975) conducted a study to investigate the acquisition of complex English structures by adult learners of English at different levels of proficiency. The results showed that the developmental pattern was similar to the child native speakers. In interpreting ambiguous sentences, beginners tend to rely on semantic rather than syntactic information. All subjects seem to deal with the data of the target language directly. They did not seem to translate or map native language structures onto those of target language. They did not find evidence of language learning strategies different from those reported in the literature for child native speakers.

Dulay and Burt (1972) propose several theoretical assumptions that support L2=L1 hypothesis that describes the process of L2 acquisition. Dulay and Burt (1976) have proposed *creative construction process* in child's second language acquisition. The behaviouristic belief about child's acquisition of language through 'habit formation', 'imitation' and 'reinforcement' was challenged by Chomsky, who proposed 'language acquisition device', 'rule formation', 'creativity' and 'heuristic procedures' as some of the processes of child's acquisition of language. Chomsky's belief was further supported by Brown (1973) who said: "A radically different possibility is that children work out rules for speech they hear passing from levels of lesser to greater complexity, simply because the human species is programmed at a certain period in its life to operate in this fashion on linguistic input." Dulay and Burt call Chomsky and Brown's account of language acquisition *creative construction process*. Dulay and Burt looked at the errors of second language learners and found that major portion of goofs can be explained by creative construction rather than habit formation because they seem to be 'developmental errors' rather than 'interference errors'. They found that for three groups of children (Chicano, Mexican and Puerto Rican) the acquisition sequence was the same as the first language. So far their approach is closer to L2=L1. According to them, "... a process in which children gradually reconstruct rules for they hear, guided by universal innate mechanisms which causes them to use certain strategies to organize that linguistic input until the mismatch between the language system they are exposed to and what they produce is resolved. The rules that the child creates are 'creative' because no native speaker of the target language 'models' many of the kinds of sentences produced regularly by children who are still learning the basic syntactic structures of a language." About the specific nature of creative construction process, they believe that there must be certain universal cognitive strategies which play a significant role in child language acquisition.

Another hypothesis about second language is 'interlanguage' (Selinker

1972); 'transitional competence' and 'idiosyncratic dialects' (Corder 1971), 'approximative systems' (Nemser 1971) hypothesis. The thesis behind this hypothesis is that the learner passes through a series of stages while learning a language. Each stage represents an interlanguage of a learner. This interlanguage has a system behind it; and by analysing this language we can assumedly 'crack' the mystery of second language acquisition. According to Nemser (1971), "The speech of learner is structurally organized, manifesting the order and cohesiveness of a system, although one frequently changing with a typical rapidity and subject to radical reorganization through the massive intrusion of new elements as learning proceeds." The evidence for an approximative system can be found in the patterning of errors in the perception and production of a given target language by learners sharing the same source language. Selinker (1972) proposes that there is a 'latent psychological structure' in the brain which is activated when one attempts to learn a second language. The sentences produced by the second language learner are neither identical with the target language nor with the source language; but they have a system of their own. This system is called 'interlanguage'. According to Selinker, the evidence for interlanguage is found in the fossilizations which are forms, phonological morphological and syntactic, in the speech of a speaker of a second language that do not conform to the target language norms even after years of instruction in and exposure to the standard forms.

The other hypothesis about second language acquisition has been proposed by Schumann (1975), who studied the linguistic development of untutored Alberto, a Costa Rican, for a period of ten months. He showed very little linguistic development. Schumann believes that by accounting for his lack of learning, we could perhaps gain some insight into the process of second language acquisition. Alberto spoke as 'reduced and simplified' form of English in which the negative particle was held external to the verb, questions were uninverted, inflectional morphemes tended to be absent and auxiliary development was minimal. Schumann considered three causes for Alberto's lack of linguistic development: age, ability and social and psychological distance from English speakers. By 'adaptive intelligence' test he found that Alberto did not have any cognitive deficiency. Age is also rejected as a cause because there is no adequate evidence for 'critical period'. Alberto's English resembled pidgin languages in that it was a 'reduced and simplified' version of standard English. According to Schumann, "pidginization occurs when a language is restricted to the communication of denotative referential information and is not used for integrative and expressive functions. Restriction to the communicative function results from the learner's social and/or psychological

distance from the target language group." Schumann explains the pidginized form of Alberto's speech in terms of social and psychological distance from English speakers. Under social distance he considered factors such as domination versus subordination, assimilation versus acculturation, versus preservation, enclosure, size, congruence and attitudes. Psychological distance includes factors like resolution of language shock, culture shock and culture stress, integrative versus instrumental motivation and ego permeability. From his case study Schumann concludes: "the pidginization hypothesis predicts that where social and psychological distance prevail we will find pidginization persisting in the speech of second language learners."

It would be worthwhile to give an operational definition of pidgin, pidginization, creole and creolization before pidginization and creolization hypothesis is discussed with respect to data drawn from second language learners. According to Le Page (1975) pidgin, pidginization, creole and creolization have been defined (a) with respect to linguistic properties, (b) social functions, (c) historical linguistic process, and (d) social processes. "Creole languages are most frequently the broad vernaculars in situations similar to diglossic situations, except that the prestige language may or may not be another variety of the 'same language' and that there may be more or less of a continuum between the creole and the prestige or model language." According to Stewart (1968) creole has 'vitality' (use of the linguistic system by an isolated community of native speakers) but not 'standardization' 'autonomy' and 'historicity'. Pidgin, on the other hand, is negatively marked for all these attributes. Platt (1975) talks of developmental, communicative and structural features of creoles and/or post-creoles. There is disagreement among scholars about whether pidginization is a prelude to creolization (see Lawton in Hymes 1971). Southworth (Hymes 1971) believes that a pidgin has the grammar of the native language and vocabulary of the target language is an over-simplification. Synchronically pidgins make use of limited resources. Diachronically both pidgins and creoles are recognized as deviant in certain respects. Hall (1966) has noted reduction of the resources of the target language (loss of phonological contrasts, merging of morphological categories), extreme 'generalization' of semantic range of lexical items and the 'brusque restructuring' of features of the target language at all levels. According to Decamp (1971), pidgins and creoles are not 'mixed languages' or 'pot pourri' or 'macaronic blends' or 'interlingual corruptions' but genuine languages in their own right. According to Hymes (1971), "Pidginization is that complex process of socio-linguistic change comprising reduction in inner form, with convergence in the context of restriction in use. A pidgin is a result of such a

process that has achieved autonomy as a norm . . . Creolization is that complex process of socio-linguistic change comprising expansion in inner form with convergence in the context of extension in use. A creole is the result of such a process that has achieved autonomy as a norm". Pidginization is usually associated with simplification in outer form, creolization with complication in outer form.

Smith (1972) mentions three functions of language : communication, affirmation of social identity and expression of psychological needs. Pidgins are functionally restricted to the communicative function. As a result pidginization produces interlanguage which is simplified and reduced. In the process of creolization, the function of language extends to the integrative and expressive uses mentioned above. With the result, there is expansion and complication in language structure.

The preceding discussion shows that there is no agreement among scholars regarding the definition of pidgin and creole languages. However for the present purpose the simplified and reduced form of the target language concept will be adopted. The author will concentrate only on grammatical features of pidgins and creoles. The characteristics of creolization or post-creolization are based on Trudgill's description of Black English (1974) and Platt's description of Singapore English (1975). The characteristics of pidginization are based upon Schumann's description of untutored Alberto's English (1977).

Indian English data are from first year students of General English in Rajasthan. These students are about 18 years old and have had 11 years' formal education. They have studied English for six years as a subject at the rate of 140 hours per year. They are supposed to have learned 250 structures and 2,500 words of English. Most of the students form a homogeneous group in that they all come from lower middle class Rajasthani-speaking families. These students hardly ever use English outside the classroom. They have little motivation for learning English. The data was collected from 50 students through written composition.

Pidginization and Creolization Illustrated

1. Why you have a kaccha house ?
2. What he eats every day ?
3. Where the doctor stays ?
4. When he takes milk ?
5. Is your brother plays tennis ?
6. Is this doctor stay in a hotel ?
7. Is he takes milk in the morning ?
8. Is this train goes to Bombay ?

9. Where this train goes to Bombay ?
10. What is playing my brother ?
11. My brother plays what ?
12. Where is the doctor stay ?
13. Where is the stays doctor ?
14. What he is doctor ?

The above question-formation shows a variable pattern. The first four sentences show uninverted questions that correspond to pidginized questions as in Neo Melanesian Pidgin (Smith 1972) and English Worker Pidgin (Clyne 1975). The formation of yes-no questions (Questions 5-8) shows a simplified version of the standard form in that the students have learned inversion but not with different auxiliaries. They seem to use the same auxiliary for all kinds of auxiliaries, though this conclusion is far from final in lack of further evidence. Question 14 seems to be the result of convergence between Hindi and English. Questions 9 and 12 show that he has learnt inversion though only one form of the auxiliary. Question 11 is not an echo question but again a result of convergence between some Hindi dialects and English. Questions 10 and 13 are difficult to explain.

Tense Markers

1. They did not took a goal.
2. One day the thieves are come and theft all the money.
3. So I ride him and I walked.
4. I get a seat and saw the match.
5. One day some thieves are came.
6. First year commerce was won the match.
7. My all friend were agreed.
8. At last we catch the donkey and started journey from Ramgarh to Churu.

According to Platt (1975) variable marking of past tense is a feature of creoles or/and post-creoles. Here we see that in sentence 1 the student has used double marking (did took) for past tense. The mixing of present and past tenses in sentences involving more transformations such as 3, 4, and 7, shows a reduction and can be regarded as pidginized form. The occurrence of past tense auxiliaries and past tense form of the verbs in 5 and 6 is due to 'convergence' between Hindi and English. The occurrence of *are* in sentence 2 is very difficult to explain.

Variable Non-marking of Singular and Copula

The sentences are quoted from a composition of a student :

Mr Garva *wears* a pant and a bush-shirt. He is a very abtudent man. He *wears* the boot and shoes in his feet . . . So Hindi teacher Mr. Garva good man.

He never *clean* the clothes.

He always *collect* money.

According to Trudgill (1974) many black speakers of English do not have copula—the verb to be—in the present tense. Platt (1975) believes that variable lack of copula and variable non-marking of 3rd person singular is characteristic of English based creoles and post-creoles. According to Schumann (1974) the word order tends to replace inflectional morphology. He illustrates this from West African Pidgin English :

i cop 'He eats, is eating etc.

i bin cop 'He eats

Lack of auxiliaries is a characteristic of English Worker Pidgin (Clyne 1975). The students here are using reduced and full forms inconsistently. May be there is a universal process of pidginization in learning languages.

Reduction in Grammatical Transformations

1. When he heard this news, his heart is fall and he died.
Instead of saying, "Having heard the news, he had a stroke", the student uses three sentences and his syntax looks more like the deep structure.
2. It should remain in the same condition otherwise the former generators will be angry who live in heaven.

The reconstructed sentence would read : It should remain in the same condition otherwise his ancestors, who are in heaven, will be angry. The permutation transformation has not applied in the original sentence.

3. So I ride him and I walked.

The sentence illustrates the non-deletion of identical subject pronoun in the second conjoined clause.

Simplification of Articles and Prepositions

In some cases, evidence was found that the students learnt one preposition or one article to express a category of meaning and over generalized its use, thereby making their usage simplified and reduced :

1. I was travelling by a donkey. (On the analogy of *by train*).
2. He came *to* home with my Daddy.
3. I have been reading English for I joined the college. (On the analogy of *for 2 hours*).

4. I was travelling by a donkey.
5. When five minutes were left there was a chance to score a goal on rival team. (One analogy of 'Is your brother plays tennis')

Examples of Learners of English from Other Languages

<i>Pidgin or/and creole features</i>	<i>Japanese¹</i>	<i>Singapore²</i>
Lack of Copula	She gonna kill her Everybody gonna do it.	My parents also cantonese You think - I stupid, lah !
Variant Inversion in Questions	I don't know where is money ? (inverted) I don't know where she is ? (uninverted) You will see where 's your house is ? (redundant)	
Variable non-marking of 3rd Person Singular and Past Tense	— —	That radio sound good. Yesterday we play hockey.
Lack of Plural Number	— —	I like orchid. How many bottle ?
Use of 'got' not 'get' as Copula	— —	Here got people.
Variable non-use of Subject or Object	— —	Is very big, you know. For those people, they can't afford. Is very nice-geography.

¹Data from Hakuta in L.L., 26 : 2, 1976.

²Data from Platt in *Anthropological Linguistics*, 17:7, 1972.

Conclusion

The evidence given here is far from conclusive. The explanation attempted is tentative. No attempt has been made to give a rigorous definition of pidgin or creole. The pidginization and/or creolization processes in the second language learning cannot be explained in terms of social and psychological factors as envisaged by Schumann (1977). The author's assumption is that there is a universal process of simplification and restricted language use through which every child has to pass while learning a language. This assumption might account for the similarities in creoles across the world as also for the second language learning being equal to first language learning hypothesis. There are second language learners who do not progress beyond the simplified stage and show evidence for fossilization of linguistic forms. There are, on the other hand, second language learners who achieve the native-like norm and do show evidence for the process of decreolization. However, the pidginization and/or

creolization stage in second language learners is transient. Further research in this regard could tell us more about the process of second language acquisition.

References

- Brown, Roger. *A first language*. Cambridge, Ma.: Harvard University Press, 1973
- Clyne, Michael G. German and English working pidgins. Paper presented at the International Congress on Pidgins and Creoles, Honolulu, Hawaii, 1975
- Corder, S P. Idiosyncratic dialects and error analysis. *IRAL*, 9, 2, 147-159, 1971a
- d'Anglejon, Alison and Tucker, G. Richard. The acquisition of complex English structures by adult learners. *Language Learning*, 25, 2, 281-296, 1975
- Dillard, J. *Black English*. New York: Random House, 1972
- Dulay, J. and Burt M. Goofing. An indicator of children's second language learning strategies. *Language Learning*, 22, 235-252, 1972
- Dulay, J. and Burt, M. A new perspective on the creative construction process in child second language acquisition. *Language Learning*, 24: 2, 251-278, 1976
- Ervin Tripp, Susan M. Is second language learning like first? *TESOL Quarterly*, 8: 2, 110-127, 1974
- Hall, Robert A. (Jr). *Pidgin and creole languages*. Ithaca: Cornell University Press, 1966
- Hymes, Dell (Ed.). *Pidginization and creolization of languages*. Cambridge University Press, 1976
- Le Page, R B. Socio-linguistics and the problem of competence. *Language teaching and linguistics. Abstracts*, 8: 3, 137-156, 1975
- Nemser, W. Approximative systems of foreign language learners. *IRAL*, 9: 2, 115-123, 1971
- Platt, John T. The Singapore English speech continuum and its basilect 'Singlish' as a creoloid. *Anthropological Linguistics*, 17: 7, 363-374, 1975
- Raven, Roar. Language acquisition in a second language environment. *IRAL*, 6, 175-185, 1968
- Schumann, John. Second language acquisition: The pidginization hypothesis. Michigan: Microfilm Xerography, University Microfilm International, 1977
- Schumann, John and Stenson, Nancy (Eds.) *New frontiers in second language learning*. Rowley: Mass. Newbury House, 1975
- Selinker, Larry. Interlanguage. *IRAL*, 10: 3, 209-231, 1972
- Smith, David M. Some implications for the social status of pidgin languages. In *Socio-linguistics in cross-cultural analysis*. David M. Smith and Roger W. Shuy (Eds.) Georgetown University Press, 1972
- Stewart, William A. A socio-linguistic typology for describing national multi-lingualism. In *Readings in the sociology of language*, J.A. Fishman (Ed.), 531-54. The Hague: Mouton, 1968
- Trudgill, P. *Socio-linguistics: An introduction*. Penguin Books, 1974

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Effect of School System on the Competence of Secondary School Students

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The present study aimed at investigating the difference between the system of private and government schools and how it influenced the competence of its students. The sample consisted of 81 teachers and 283 students selected from four schools. The design of the study was 2×2 factorial, having two government and two private schools, two boys' and two girls' schools. Three aspects of school system were examined—the material, organizational and human relations. The findings revealed that despite less physical facilities and with higher workload, the private schools had better organizational structure and more competent students than the government schools.

THE PURPOSE of the present study was to investigate the influence of school system on the competence in children. Competence, according to White (1968), is a motivation to attain control over the environment. Human beings have a tendency to explore the environment. These exploratory behaviours are aimed at maintaining their effective relationship with environment. For Bruner (1974), competence means intelligence in a broader sense implying action on the part of the individual towards changing the environment as well as adapting to it. Inkeles (1966), in a similar way defines competence as the ability to perform effectively in valued social roles.

Our use of the term grossly corresponds to that of Bruner (1974), and is essentially very close to Murphy's (1956) treatment of coping abilities. It is a child's everyday effectiveness in dealing with his environment, his abilities to master appropriate formal concepts, to perform well in the school (i.e. on the educational achievement), to relate with adults and peers.

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Thus, the components of competence may be : acquisition of skills, his self-confidence, positive self-concept, internal control of reinforcement, moderate and/or high level of achievement, and positive leadership qualities. A competent person is the one who perceives himself as socially adjustable, emotionally mature, capable, self-confident, successful, satisfied, decisive, optimistic, independent, self-reliant, self-assured, having leadership qualities and constructive self feeling (Allport 1961, Combs and Snygg 1959, Rogers 1951).

There are broadly two important institutions which help develop competence in children : the family, and the school. In this study we have confined ourselves to the school system, especially the secondary schools, and have tried to see as to how it instill competency in its pupils.

When we talk of school system, the first thing that comes into mind is the ownership of the school. There are schools maintained by (a) the Central government, (b) the state government, (c) municipal corporation, (d) direct beneficiaries (students paying fees), (e) endowment, (f) religious and charitable institutions, and (g) internal agencies. Each of these different types of school has its own unique organizational problems and its own particular structural arrangements which influence the management of the system, the effectiveness of teachers, students' growth, competence, etc.

The school as a system contains two important aspects, one is the physical and the other is organizational including human relationship. By physical aspect we mean those material components which facilitate or interfere with the learning and growth of competence. These may include : (i) age of the school, (ii) physical quality of classrooms, (iii) teaching equipments, (iv) common room, (v) library, (vi) laboratory, (vii) playground, (viii) play materials, (ix) furniture, (x) drinking water, (xi) electricity, (xii) sanitary and lavatory facility, (xiii) location of the school, etc. Organizational aspect includes the type of managements, style of the principals, teacher-student ratio, teachers' workload, modes of teaching teachers' groupings, their interaction with students, etc. The principal of a school does more than any other single person to create a particular climate for education. His/her leadership styles may be classified under three categories -authoritarian, nurturant, task-oriented and participative. An authoritarian principal due to his need for power and dominance may make the teachers dissatisfied which will dampen the effectiveness of his teachers and in turn of the students. In a study Bigalow (1971) found that in the school where principals exerted power over teachers, the teachers in turn exerted over students. A democratic or participative principal on the contrary will show warmth and understanding towards

teachers and students and hence might be conducive to the growth of competence. Similarly, a task-oriented and nurturant person will be considerate of teachers, needing direction and support of the teachers and desirous to use the direction and support to arrive at his own decision (Wiggin 1974).

The workload of the teacher is another relevant factor of competence. If a teacher is required to teach six hours a day and has also to attend such works as maintenance of class register, organization of co-curricular and extra-curricular activities, preparation of time-table, helping the principal in different activities, how can he/she teach effectively. This leads to the consideration of even more important factor -the modes of teaching.

Another important factor is the teacher-student relationship. Teacher's behaviour can help or hinder student's learning in the classroom. A good teacher-child relationship can be conducive to developing positive self-concept in creativity and various achievement-related motives in children. A good interpersonal relationship between the principal and teachers facilitates the teaching process.

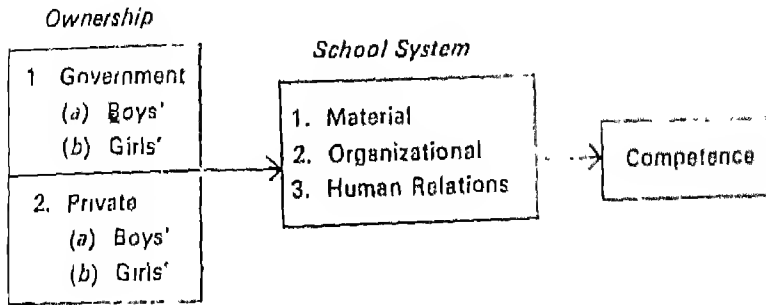
The Present Study

The present study was started with a view to investigate whether there exists any difference in the competence of children studying in private and government boys' and girls' schools as a result of difference in the organizational system or the physical condition of the schools. In addition to individual pupil's indicators of competence, some aggregate indicators of school competence such as percentage of students passing the examination, students getting first division in the first public examination, i.e. the Secondary Board Examination, students obtaining scholarships, students being selected in competitive examinations and participation in extra-curricular activities (e.g. drama competition, games competition, etc.) were also looked into.

A lot of unsound logic is advanced by the public in general, and parents and guardians in particular, that government schools are not as good as the private schools. Hence, the present study is designed to compare government schools with privately managed schools.

The study was to be conducted in four schools. Although all the private high schools have been taken over by the government since 1974, they are only partly financed by the government and the administration of the school has not yet changed. The rationale for taking such a sample

was to examine the effectiveness of private and government schools in different areas. The design of the study was a 2 x 2 factorial having two government and two private schools—two of boys' and two of girls'. The pattern of relationship is hypothesized as follows :



Method

Sample

A sample of 81 teachers and 283 students was drawn from the four schools located in Patna. All the teachers of the four schools were approached and approximately 75 per cent of them cooperated in the study. The students' sample was drawn from Class XI only. The rationale was that these students have spent the maximum number of years in the school and hence are more likely to manifest the effects of the school system. Two sections of Class XI from each school were selected randomly, one representing the science and another of arts faculty.

Information Schedule

An information schedule was prepared inquiring about the physical facilities which the schools are expected to provide. It included items such as condition of school building, number and size of the classrooms, furniture, facilities of library and books for poor boys, laboratory, provision of scholarship, hostel facility, facility of electric gadgets as fans, bulbs in each room, sanitary and toilet facility, drinking water, provision of lunch, playground and play materials, co-curricular and extra-curricular activities, appointment of co-teachers, medical facility, and conveyance, etc.

Information about the year of establishment, grant-allocation, number of teachers, pay-scales of teachers, location of the school, work of managing committee, etc. were also collected. The information was collected partly from the secondary sources and partly through observation.

The Style of Principalship

A five-point scale was prepared to measure the leadership style of the principals. Three types of leadership style were examined -the authoritarian, the nurturant task-oriented and the participative style.

Teachers' Interview Schedule

A structured interview schedule was prepared covering : (i) the teachers' attitude towards the school, (ii) their workload, (iii) job-satisfaction, (iv) modes of teaching, (v) aspiration, (vi) self-concept, (vii) interest in extra-curricular activities, and (viii) relation with principal, fellow-teachers and students. There were some open-ended items also in order to give respondents scope for elaborating upon their responses to the structured items. Those items were content analysed.

Students' Interview Schedule

The inventory covered the following areas : (a) rules and regulations of the school, (b) modes of teaching, (c) interpersonal relationship with teachers and peers, (d) cooperation, (e) leadership style, (f) personal initiation and achievement, (g) fatalism, (h) self-concept, (i) extraversion, and (j) self-confidence. Altogether 36 items constituted the schedule. The responses were binary giving (1) to 'yes' and (0) to 'No' answers. Some open-ended items were also included. Their responses were content analysed and were treated separately.

Background Variables

The students were asked to write about their parents' education, income and occupation which constituted a composite score for the socio-economic status of their families. The rural/urban background was also taken into consideration

Nature of Intelligence

Raven's Progressive Matrices was used to measure the intelligence of students. It contained five sets of incomplete figures, each with a set of six designs. The task of a subject was to indicate which one of the six designs was able to complete the given figure.

Procedure

First of all, the principals were contacted. They were requested to give information about the facilities their school provided to the pupils. It

took half-an-hour to complete the schedule. In another session they were administered a leadership style scale. They were also requested to allow their teachers and students to participate in the study. The principals introduced the investigator to the teachers and also provided the needed facilities.

Data from students were collected in their classrooms. They were seated in pairs on one desk comfortably and were given relevant instructions for the Raven's Progressive Matrices and for the inventory they had to fill out. To avoid consultation with each other one of them was administered the Progressive Matrices and another the inventory. Then the order was reversed. A time-limit of 45 minutes was set for each task.

Results

The school climate consisted of physical facilities and modes of functioning of a school as observed by the investigator and/or reported by the principal.

School A

This is the first government boys' secondary school in Bihar established in the year 1835. It is situated near a market area. The campus of the school is big with a big building, a beautiful garden, and a playground. The condition of the building is not satisfactory. It requires repairs. One of the roofs of the back verandah may fall any time. There are sufficient number of classrooms with adequate furniture. The rooms are big. Students have permanent seats in the class. Black-board, chalk and duster are all available. For drinking water there are water-taps. Water is also stored in big pots. Toilet facilities are on the whole good. No medical facility is available. There is a good hostel and the students residing there are taken care of by the teachers. Library of the school is well equipped.

Students are expected to participate in a variety of extra-curricular and co-curricular activities. They participate in social works also. There is a new class for teaching art and craft which is named as 'laghu udyog' in which students learn to make candles, envelopes, chalks, leather bags, etc. Trained teachers for these classes are available. The items made by students are used in the school or sold outside.

A limited number of students get scholarships. There is a public speaking system with the microphone placed in the principal's room. Every morning a group of four or five students come to the principal's room and sing a morning prayer on the microphone. Students stand up in their

classes and participate in the prayer. The principal also participates. After that, one student reads out the important news and also announces the daily and special programmes of the school. Students can hear the radio programmes meant for school students.

There are 48 teachers and 1,400 students in the school, the teacher-student ratio being 1 : 29. Teachers are appointed by a selection committee. Extra teachers are not appointed. There is no leisure during the seven periods for the students which indicates the task emphasis of the school. In the course of observation, it was clear that teachers were not oriented towards their teaching work. There are factional teachers, also. Some old teachers are punctual but the new ones do not respect the principal and do not listen to his directions. If they are assigned any extra class, they resent. The principal finds himself unable to control his staff although he is himself punctual.

School B

This is the first government girls' high school. It was established in 1874 by Arya Samajis but later on the government took the charge of the school in 1906. There are 46 teachers and 1,600 students in the school, teacher-student ratio being 1 : 35, which is much higher than the government boys' school. The school runs in two shifts—from 6 a.m. to 11 a.m. and from 11 a.m. to 5 p.m. There are ten teachers in the morning shift. An obvious conclusion is that there is an over-emphasis on classes and teaching.

The school is located near a small market place on the bank of the Ganges. The sight of the school is beautiful. It has a big building with a beautiful garden and a fountain in the centre of the garden. Behind the school is a big playground with a number of swings, sea-saws and other play things although now they are not well maintained.

The classrooms are large-sized with enough furniture. The atmosphere is calm and quiet. The classrooms lack good quality of black-boards, electric fans, bulbs, etc. During the course of observation the investigator had some informal talks with teachers and asked about their difficulties. Some of the good teachers were dissatisfied due to lack of black-board in the class. They said that in spite of their efforts to teach the students effectively, the students did not do well in the examination due to the fact that they cannot use black-boards. The helplessness on the part of the teachers in improving the minimum required school supply/facility is obvious. Either the principal is uninterested or helpless. The students suffer due to lack of availability of drinking water in the summer.

They buy one glass of water for 10 paise outside the school. The toilet condition is bad. There are only two lavatories for teachers. Girls have their lavatories at a far off place near the Ganges which they can reach by crossing the playground. The construction of these lavatories was started 20 years ago, and yet it is incomplete. The place is lonely and girls feel afraid of going there alone.

The library is in good condition. There is also a book bank for poor girls. Lunch is provided at a nominal rate. Students do take part in extra-curricular activities. The classes for 'laghu udyog' are also held. A limited number of scholarships are provided to students. For conveyance, the school has employed the Rajya Transport buses.

Previously, there was some arrangement for radio programmes which have now been discontinued. Thus, the school presents a mix of good and bad environment facilities.

The school suffers from internal factions. Teachers were dissatisfied over principal's behaviour. When they were asked about the principal's style and her relations with teachers, most of them refused to disclose anything due to the fear of harassment. This is an indication of low morale, mistrust, lack of intimacy, etc. on the part of the teachers. Only after a rapport with the teachers, many of them ventured their views regarding the principal which were negative. The teachers were usually punctual but the principal was always late by half-an-hour.

The teachers showed dissatisfaction over the use of old syllabus. One of the teachers who taught English said that she had been teaching the same lesson since 20 years. She was fed up with teaching the same material over such a long time.

School C

This is a private boys' high school. There are 36 teachers and 1,400 students. School is located in a congested yet posh residential area. This school does not have a good building, nor playground, nor any garden. The classrooms are very limited in number and small for students. The furniture in classroom is inadequate. Four-five students sit on one desk meant for two or three. They feel difficulty even in using their books or note-books. The rooms are not well ventilated. The environment is noisy. The school does have fans and bulbs in each room. There are water taps for drinking water but they are not sufficient in number. Sanitary and toilet facilities are also lacking. The teachers have no toilet room due to which lady teachers face great difficulty. There is no provision for medical care, lunch or conveyance for the students. The library has a

good selection of books. The science laboratories are good but due to lack of space, the theory classes are also held in the laboratory rooms. There is no provision for games or any other extra-curricular activities because of the lack of playground. Students go to Gandhi Maidan to play football and they are very good football players.

A class of craft called 'laghu udyog' has been introduced but due to lack of trained teachers and raw materials the programme is not operative. Radio or other mass-media are not being employed in teaching. Very few students get scholarships. Teachers are cooperative and there is good understanding among the principal and teachers.

School D

It is a private girls' school, comparatively smaller, having 800 students and 26 teachers. The school is situated in purely residential area. The environment of school is very calm and quiet. The condition of school building is good. The classrooms are not sufficient in number. There are 40 to 50 students in one class. In each classroom there are good black-board, duster and chalks, fans, bulbs, etc. The arrangement for drinking water is good. The school has a beautiful playground with swings and sea-saws. No medical facility, except the first-aid, is available. The school contains a well equipped library. Science laboratories are good with adequate materials and apparatus. The rooms are clean.

On the whole, the environment of the school is academic and stimulating. The principal has good relation with teachers and also exerts influence over them. The principal and majority of teachers are Bengali-speaking. The teachers are punctual and cooperative.

In summary, it seems obvious by the description of schools that the government schools provide more facilities to their pupils than the private schools but the private schools give all those facilities which are essential for academic work, e.g. black-board, laboratory, library, fans, etc. All these facilities are necessary for teaching-learning situation and also add to the morale of teachers. On the other hand, School B, being a government school, lacked facilities of black-board, fans, bulbs, toilet and drinking water. The reason may be the absence of concern of the principal.

Leadership Style

No significant difference was found between the leadership styles of the principals of all the four schools, but there was a trend revealing that the principal of School D was more task-oriented and nurturant type. The principal of School C showed a bent towards more authoritarian

style giving emphasis on discipline. None of them manifested for participative style.

Teachers' Inventory

The 38-itemed inventory for teachers showed more than 75 per cent agreement on some of the items. Response on those items were, therefore, removed from analysis. Thus, responses to only those 15 items were analysed by chi-square test in order to see the differences between the four schools. Table 1 presents the responses in percentages and the respective chi-squares.

TABLE 1
PERCENTAGE OF TEACHERS ENDORSING THE ITEMS

Items	School A	School B	School C	School D	χ^2 (df, p)
1. Do you get enough time for your studies after schools ?	66.6	57.8	20.0	31.3	32.75**
2. Besides teaching, are you allotted any other administrative duty ?	38.2	42.1	24.0	6.25	48.65**
3. Do the students score high marks in the subject taught by you ?	85.7	73.6	100.0	37.5	28.90**
4. Do you like that students ask questions in the class ?	66.6	89.5	80.0	81.2	3.39
5. Do the students bring their difficulties to you ?	52.3	68.4	44.0	85.0	15.81**
6. Do you move around with students ?	33.3	52.6	32.0	43.7	24.93**
7. Is there a friendly relation among teachers ?	87.7	64.4	88.0	87.5	3.48
8. In case of a teacher being absent, is the class engaged by other teachers ?	100.0	84.2	100.0	68.7	7.65
9. Do the teachers indulge in back-biting ?	71.4	42.1	60.0	87.5	16.80**

10. Does the principal seek your opinion in solving problems of the school ?	76.1	57.8	64.0	87.5	7.30
11. Does the principal accept your suggestions regarding the syllabus and routine ?	71.4	78.9	60.0	81.2	23.75**
12. Do you pay any attention to the personal problems of the students ?	80.0	84.2	68.0	81.2	1.92**
13. Do you scold or beat the students ?	42.2	36.8	72.0	12.5	38.78**
14. Does the principal give more appreciation to a good teacher ?	76.1	57.8	76.0	62.5	2.96
15. Do you encourage the students to prepare for dramas and debates ?	80.1	78.9	32.0	100.0	34.27**

* $P < .05$, ** $P < .001$

Table 1 revealed that the workload of teachers was greater in government schools. The interpersonal relationship between teachers and students was found to be conducive in both the girls' schools (Schools B and D). It may be said that lady teachers are more nurturant and caring type. On the other hand, male teachers are more strict, punitive, and discipline-oriented. The findings seem congruent with the studies of Buch and Santhanam (1971) who found that female teachers were more democratic, tender-hearted and encouraging. Ryan (1960) has also reported similar results.

The relationship among fellow-teachers was found to be better in the private schools although the difference was not significant. The teachers of government schools showed more dissatisfaction over the behaviour of their principals. They reported that their principals were biased and favoured teachers of their own castes.

There was a significant difference regarding the modes of teaching of the four schools. The private schools specially that of the boys' (School C) had an edge over the government schools. On the contrary government boys' school (School A) and private girls' school (School D) revealed more of involvement in extra-curricular activities. Out of 36 items in teacher's inventory, three were open-ended. The items were ; (i) What do

you like most in your school ? (ii) What sort of difficulties you have to face here in the course of your service ? (iii) Apart from teaching, what other hobbies do you have ? The responses were content analysed. They yielded three main categories : (i) physical attributes, such as the environment of the school, its building, garden, hostel, location, library, playground, etc., (ii) social and interpersonal relations inclusive of teacher-student relationships, relation with principal and other staff-members, principal's behaviour and work-commitment, and (iii) activities and attainment of the school, e.g. result of the school, cultural activities, modes of teaching, discipline, modes of examination, etc.

In government schools (boys' and girls' respectively) 77.2 per cent and 100 per cent teachers reported liking for the physical facilities, 27.7 per cent and 15 per cent for good interpersonal relationship, 31.8 per cent and 15 per cent for the activities and attainment of school such as modes of teaching and administration.

In private schools (boys' and girls' respectively) 15 per cent and 12 per cent teachers reported liking for the physical facilities, 24 per cent and 73.3 per cent for good relationship and 96 per cent and 25.3 per cent for effective modes of teaching, results of students, modes of examination and administration of the school.

Fifty per cent teachers of School A reported that they had to face great difficulty due to the absence of essential facilities. About 18 per cent showed dissatisfaction over bad relationship among fellow-teachers and with the principal. Fifty per cent of them regarded activities of the school as their main problem such as faulty routine, heavy workload, little or no scope for promotion, indiscipline in students and some other official problems.

In School B almost all of them reported that they were facing difficulties due to lack of (a) black-board in the class, (b) toilet facility, (c) electric equipments, and (d) accommodation. Fifteen per cent of them were dissatisfied with the relationship between the teachers and the principal, and 95 per cent reported bad functioning of the school as their problem.

Twenty-eight per cent teachers of School C reported problems regarding physical facilities, 8 per cent perceived bad relationship between teachers and the principal as their problem area and 80 per cent blamed faulty syllabus, time-table scheduling, large number of students, differences in pay-scales, for their difficulties.

In School D only 13.3 per cent teachers felt difficulty due to inadequate furniture, 13 per cent reported problems due to lack of cooperation among teachers and bad relationship with the principal. Only 6.6 per cent blamed the bad activities and functioning of the school.

The responses about hobbies and aspiration apart from teaching, also yielded three categories : (i) educational, (ii) social and cultural, and (iii) extra-curricular activities. Sixty-four per cent teachers of School A, 91 per cent of School B, 38.8 per cent of School C and 16.6 per cent of School D showed preference for academic work such as wish for higher education, book-reading, research work, story writing, etc. Only the male teachers of both government and private schools preferred social and cultural activities. On the third category, 21.5 per cent teachers of School A, 83.3 per cent of School B, 57 per cent of School C and 83 per cent of School D indicated their interest in extra-curricular activities.

Students' Perception of Their Competence

Among the 36 items of the inventory only 17 showed variation in responses, therefore, only those items were selected for analysis. A chi-square test was calculated for each item. Table 2 contains items, responses in per cent and the respective chi-squares,

TABLE 2
STUDENTS' PERCEPTION OF THEIR SCHOOL AND THEMSELVES

Items	School A	School B	School C	School D	χ^2 (df 3)
A. Perception of the School					
1. Is your course finished in time ?	82.4	77.2	100.0	94.5	3.76
2. Does your teacher correct your home-work everyday ?	36.8	83.3	84.0	100.0	29.93**
3. Do you have to bring an application from your guardian in case of your absence ?	86.0	50.0	25.5	100.0	52.31**
4. Do you go to places with your teacher ?	14.0	36.0	11.6	29.7	18.94**
B. Perception of Competence in Self					
5. Do you seek clarifications if you don't understand a lesson in the class ?	93.0	100.0	100.0	98.0	0.33
6. Do you respond to a teacher's question only when you are asked ?	19.2	10.6	4.0	8.0	11.89**

7. Do you share with your friends the things taught in class?	87.7	88.0	94.0	100.0	0.81
8. Do the students have combined study groups?	43.8	80.0	87.0	94.5	19.8***
9. Have you ever been the monitor of your class?	26.3	22.7	16.2	18.9	1.13
10. Do the peers listen to you as a monitor?	56.1	34.8	38.3	87.8	32.46**
11. Do they accept you as their leader?	17.5	45.4	37.2	54.0	18.96**
12. Do you like to be alone instead of being with your friends?	61.4	87.8	67.5	92.0	11.6***
13. Do you feel uneasy while talking to unknown people?	66.6	36.3	40.6	18.9	28.79**
14. Do you rely more on your fate than your efforts?	70.0	84.0	95.0	86.5	3.84
15. Have you won any prize in the school?	54.3	34.8	20.9	33.7	15.85**
16. Have you ever participated in dramas, debates, etc.?	29.6	69.6	32.5	67.5	20.71**
17. Do you feel that the teachers and students like you?	47.5	65.1	48.8	89.0	17.93**
<hr/>					
	*P < .01		**P < .05		

Table 2 revealed that the students of private schools had a favourable perception of their school than students of government schools. They reported more friendly relation with the teachers and a better mode of teaching.

On the items related to dimensions of competence, the girls of School D showed more leadership qualities than others. The second rank was of the girls of School B. Boys of both schools showed less leadership qualities. With respect to initiative shown by the students, no consistent trend was found. The students of government schools showed more initiation than the private ones.

On the items of extraversion again 90 to 98 per cent girls of both schools reported that they wanted to be with friends than being alone. This is further corroborated by response to the item as : Do you feel difficulty in talking with unknown people? The boys in high percentages endorsed this item. This indicated to the better social competence in girls than in boys. The girls of School D scored high on the factor of self-

concept which was followed by girls of School B. The boys on the whole reflected lower self-concept.

Surprisingly, a large number of students getting first and second divisions came from government girls' school and private boys' school. The aspiration of students regarding what position they expected to get in the future examination was also analysed. No significant difference in the responses was found. Most of the students aspired to secure first division irrespective of their previous achievements.

The Raven's Progressive Matrices reflect that most students having above average intelligence were from School D. School A and School C were more or less on the same level. Lowest on the intelligence were students of school B. The finding is seemingly contradictory to the fact that the government school girls reported obtaining more first and second divisions. No explanation seems possible except that the girls' reports may not be reliable.

Socio-economic Background

A product moment correlation was computed between sns of students and their competence separately for four schools. The relationship was not significant. The socio-economic status of the family showed a clear-cut difference among schools ($X^2=21.67$, $P<.01$). Majority of students of School A came from comparatively lower sns families having rural background. In both the girls' schools (e.g. School B and D) most of the students were from high-middle and upper-class families and from urban population.

Conclusion

The study was designed to investigate the difference between the system of government and private schools in Patna, and its effect on the competence of its pupils. The schools were ranked on the basis of physical facilities it provided to its pupils. The findings revealed the impoverished condition in which the four schools of Patna were functioning. They were deprived of even necessary facilities. Comparatively the government schools scored better on physical facilities they provided to their pupils, and among the government school also, the girls' school was deprived of many necessary facilities such as black-boards, drinking water, etc. Despite of the less facilities, available and with comparatively high workload, the private schools were found to be better in their modes of teaching, interpersonal relationships within the school and with more competent students

than the government schools. On the basis of findings, it may be concluded that physical facilities were not as important factor in influencing the competence as the effective modes of teaching and good interpersonal relationships among the teachers.

References

- Allport, G.W. *Patterns and growth in personality*. New York : Holt, 1961
- Bigalow, R. Changing classroom climate through organization development in schools, National Press Books, 1971
- Bruner, J. Competence : Its nature and nurture. In Connolly, K. and Brunner, J. (Eds.) *The growth of competence*. Academic Press, 1974
- Combs, A.W. and Snygg, D. *Individual behaviour*. New York : Harper, 1959
- Inkeles, A. Social structure and the socialization of competence, *Harvard Educational Review*, 36, 265-283, 1966
- Murphy, L. *Personality in young children*. New York : Basic Books, 1956
- Rogers, C.R. *Client centered therapy*. Boston : Mass Houghton Mifflin, 1951
- Ryan, D.C. *Characteristics of teachers*. Washington D.C. : American Council on Education, 1960
- White, R.W. Motivation reconsidered : The concept of competence, *Psychological Review*, 66, 277-333, 1959
- Wiggin, T.W. The influence of role and organizational climate upon administrative behaviour : A system analysis. In Motilal Sharma, *Schools in context*, Ambala Cantt. : The Indian Publications, 1974 [..]

Ph.D. Theses Abstracts

Survey of Teacher Education in Maharashtra

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THE STUDY was limited to teacher education for bachelor's degree in education in the six universities of Maharashtra. Both quantitative and qualitative aspects were surveyed. The investigation was limited to the period 1947 to 1973 and focussed on some aspects of teacher education, namely, policy and planning, courses offered, physical plant and facilities, syllabus, extent of expansion, opinions of trained teachers, opinion of teacher-educators, opinion of principals, students of colleges of education as well as of government officials of the Department of Education and state level institutions and experts in the field of teacher education.

The normative survey method was used. The following tools of investigation were utilized :

1. Opinionnaire to teachers in schools who had taken their bachelor's degree in education during the last 25 years. A five-point scale was used. It covered : (i) Theory of education and its teaching, (ii) Practice of education, (iii) System of evaluation, (iv) College atmosphere, (v) General personality qualities of college teachers, (vi) Important issues in teacher education today. There were four variables : (i) Bachelor's or Master's degree holders, (ii) From humanities or sciences, (iii) Experienced or fresher at the time of training, (iv) Three different periods during the 24 years of study when the degree was taken. The sample consisted of 1.5 per cent of the total number of trained teachers in the State of Maharashtra, well distributed over all the districts, totalling 1,076. Data was analysed by (a) weighted frequency method and (b) applying χ^2 formula.
2. Individual interviews of four experts, officials of the Department of Education, 11 principals of colleges of education of the six univer-

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sities of Maharashtra, and group interviews of student-teachers of these colleges provided data regarding their opinion on various aspects of teacher education.

3. Questionnaire to teachers of 50 per cent of colleges of education in each university. Total response is 150, that is, 20.4 per cent of teacher-educators at the secondary level.
4. Study of records, reports and other documents.

Major Findings

Expansion

There has been a six-fold increase in the number of trained teachers, the increase being the highest in the Nagpur and Aurangabad regions and the least in the Bombay and Pune regions, which originally had more trained teachers and still do. While the backlog of untrained teachers has been reduced almost to nil in the Bombay and Pune divisions, a substantial backlog still exists in the Nagpur and Aurangabad divisions. Expenditure on colleges of education went up by 1.5 times from First to Second Plan, and 4.6 times from Second to Third Plan, and the upward trend continued during the Fourth Plan.

Policy

There was no long-term plan of development of teacher education by the Department of Education. Physical resource development has predominated over human resources development. The Secondary Board of Teacher Education (SBTE) has not been sufficiently active in the field of secondary teacher education. There is diarchy in administrative set up—colleges with affiliation to universities and then the SBTE and the Department of Education—leading to lack of policy coordination.

State Level Institutions

A large number of state level institutions have been set up. They have short-term programmes mostly. There is hardly any field try-out or pilot-testing and for that matter evaluation of the programmes. As a result the impact of work done by the state level institutions is not known.

Physical Plant and Facilities

Government colleges of education were more spacious than private colleges. The lay-out, structure and facilities are outmoded and meagre. Science laboratories and workshops for work-experience training were limited in number. Some of the colleges were dingy and depressing, and only one college had made efforts at creative atmosphere. Libraries of

government colleges of education have larger number of books than libraries of private colleges. Mostly standard works are stocked, there is no specialization and the latest editions like *Deschooling Society* by Ivan Illich were unheard of except in one college. Development of libraries is not systematic and the list of new arrivals is not circulated among the staff. Government colleges had better psychological laboratories and AVL. Older colleges had larger and better equipped staff rooms and lecture halls. Provision for students' common-room and canteen in most colleges is very poor and unhygienic.

Syllabus

All the six universities of Maharashtra offer B.Ed. general course. In addition, Shivaji and Nagpur Universities also offer B.Ed. Basic. The G. K. Institute for Rural Education at Gargoti offers a four-year integrated course known as Diploma in Rural Services. B.Ed. syllabi undergo revision very infrequently, in fact, only two revisions in 24 years have taken place. The mode of revising is very unscientific—only consists of referring to and selecting from syllabi of their universities. Psychologists, sociologists, teachers and principals of schools are not consulted. The B.Ed. general course consisted of Theory of Education (Part I) and Practical Work (Part II). Part I has five papers except in Poona University which has six, that is, one on Problems of Education and Development of Education in Maharashtra. In Section B of Paper I, B.Ed. Basic course of Nagpur University, importance is given to basic education. In practical work the student specializes in craft-work and experiences community life activities. The B.Ed. Basic course of Shivaji University offers Principles and Techniques of Basic Education in Paper V. The curriculum of the G. K. Institute at Gargoti consists of (i) Core subjects—compulsory English and Community Development and Extension, (ii) Any two school subjects, (iii) Pedagogical Studies, and (iv) Teaching Practice.

Opinion of Past Students

The past students of the B.Ed. colleges considered the moral standard of some staff members of the B.Ed. college to be unsatisfactory and competition among students unhealthy. The behaviour of principals and teacher-educators towards teachers was authoritarian. The B.Ed. training was not considered useful for school teaching. The leadership qualities, lectures, supervision, guidance and innovation are all rated as poor. The B.Ed. course does not develop teachers as agents of social change. The university B.Ed. examination results and college evaluation were partial. The theory and practical course were considered well balanced, the model lessons good, there was some increase in their knowledge of content matter

of school subjects and internal grading did not lessen their freedom of speech and action.

Opinion of Experts and Principals

Principals do not have time to read, think, show initiative or try innovations. They do not systematically inspect, supervise nor guide the academic work of their staff. They have no definite policy or plan regarding development of college staff. They do not make efforts at organized reading or review of books by their staff members.

Teacher-educators at all levels are lethargic, conservative, they do not read or think about improvements, but take the line of least resistance. The calibre of teacher-educators is poor. They are drawn from the teaching profession, which is manned mostly by third divisioners. Senior members of the Board of Studies and Academic Councils are deeply entrenched and very conservative. They block all efforts at change by newer entrants. They stay long enough to gather their travel allowance and their approach is bureaucratic rather than academic.

There is no academic inspection of work of principals of colleges of education. The local inspection committees by universities have a bureaucratic approach.

Opinion of Student-teachers

Student-teachers believe they would not apply in school what they learnt during practice-teaching. They are not happy with the way practice-teaching is conducted. They were highly dissatisfied with the operation of the students' council and the system of internal examination. They believe that courses in school organization and administration, experimental psychology, and educational statistics should be left out of the B.Ed course. They regarded educational psychology and evaluation to be the most useful subjects.

Teacher-educators and Their Opinions

Only 6 per cent of teacher-educators hold Ph.D. degree. Mostly they hold second divisions. Fifty-six per cent of teacher-educators have less than five years' experience at teacher education. One-third have less than five years of teaching experience in school. Seventy-two per cent of staff had not received promotion during the last five years, 38 per cent were tutors, 47 per cent were lecturers, and only 15 per cent held senior positions. Only 55 per cent of staff was permanent, 15 per cent was on probation while 30 per cent was temporary.

Teacher-educators, unlike others in the field, are quite satisfied with the present state of teacher education. According to them, during the past

25 years there has been very good improvement in B.Ed. syllabus, practice-teaching and guidance, good improvement in conditions of service of teacher-educators, financial support of student-teachers, extension services, co-curricular activities programmes and evaluation of practice-teaching. The areas in which they find no improvement are content knowledge of school subjects, social service programmes and innovative practices.

Teacher-educators believe that principals of colleges of education need training. The five most important functions of principals, according to teacher-educators, are administration, public relations, teaching, educational leadership and guidance. Very few teacher-educators have tried any innovations. Teacher-educators tend to be satisfied and complacent about teacher education and have hardly thought of changes.

Many of the recommendations of teacher education made by the Secondary Education Committee, the Education Commission and the Committee on Teacher Education in Maharashtra State have not been implemented.

Recommendations

1. There should be no further expansion by way of more colleges of education at the secondary level.

2. A study of wastage in teacher education at the secondary level among graduates in education of the last five years, particularly in western Maharashtra, is essential to prevent further wastage.

3. Admission policy will need to pay greater attention to the need for trained teachers of the four divisions of Maharashtra. The facilities of western Maharashtra should be utilized for training teachers of eastern Maharashtra where there is a greater backlog of untrained teachers. For this, suitable arrangement regarding the medium of instruction and for hostel facilities will need to be made.

4. Policy of heavy investment in physical resources development of colleges of education needs to be replaced by a policy of developing by investing in human resources, for qualitative improvement in teacher education.

5. A strategy for the qualitative improvement of teacher education in Maharashtra needs to be chalked out. First step would be the identification of the elements in the structure of secondary teacher education requiring treatment for human resource development. Seven elements may be identified :

- (i) Top-level leadership in teacher education at non-government level
- (ii) Top-level leadership in teacher education at state government level

- (iii) Personnel of university department of education
- (iv) Principals of colleges of education
- (v) Staff of colleges of education
- (vi) Principals of secondary schools
- (vii) Teacher associations, subject teachers association and teachers in general.

6. Maharashtra Institute of Teacher Education (MITI) may be established, which may be autonomous in nature, to carry out the strategy of development in teacher education.

7. Estimate of amount of finance available to secondary teacher education for human resource development for the next five years and the following five years, is important to make realistic and practical plans for development.

8. Organization of MITI may be as follows :

- (i) Department of Experimentation and Evaluation
- (ii) Department of Human Resource Development
- (iii) Department of Disciplinary and Inter-disciplinary Studies
- (iv) Department of Curriculum Development
- (v) Department of Coordination and Public Relations

9. There should be long-term planning for teacher-education at secondary level.

10. Frequent transfers of government officials in charge of teacher education and staff of government college should be avoided. Government cadre in educational administration should be given training pertaining to educational administration, specializing in particular area of education.

11. Government officials as well as principals of private colleges should work towards creating rapport with each other.

12. There is need for injecting incentives for teacher-educators, principals of colleges of education and for colleges of education doing superlative work.

13. The system of inspection of colleges of education must be improved very substantially.

14. Credibility of B.Ed. examination needs to be improved. Dissatisfaction of students with internal as well as external examination system needs to be investigated.

15. The process of revision of syllabus by universities needs to be more scientific.

16. Training of teacher-educators and principals of colleges of education is essential for improvement in execution of B.Ed. course. Principals

of colleges of education need to take their supervisory duties more seriously.

17. Far-reaching changes to bring about improvement in practice-teaching are essential.

18. Colleges of education need to provide much better training in audio-visual aids. They need to make much better use of audio-visual devices like film projectors, tape-recorders, etc. which are lying idle in their cupboards.

19. Colleges of education need to provide social service and work-experience programmes to their students. Also there should be provision for student-teachers to develop skills in science practicals.

20. Principals and staff members of colleges of education need to give up authoritarian behaviour towards their students.

21. Value system of colleges of education needs to be toned up.

22. Members of Board of Studies and the Academic Councils need to take their responsibilities more seriously.

23. Revision of syllabi after proper research into what is required is overdue.

24. Better criteria for selection of staff of colleges of education need to be developed and used. Twenty per cent of staff should be made of persons from fields other than teaching.

25. Teacher-educators need to develop as extension workers and help in making a success of the college-school complex.



Organizational Climate and Teacher Attitudes : A Study of Relationship

MADHU KANIA TRIPATHI

THE MAIN OBJECTIVE of the study was to find out relationship between organizational climate of intermediate colleges of Varanasi district and professional attitudes of teachers employed therein. The study is divided into three parts : (i) the organizational climate of the intermediate colleges, (ii) the identification of teacher attitudes, specially of teachers working in the selected colleges, and (iii) assessing and estimating the pattern of relationship between the two selected variables—organizational climate and teacher attitudes. The main thrust of the present investigation was on this part.

Objectives

1. To find out the organizational climate of the intermediate colleges of Varanasi district.
2. To study sex-wise, location-wise and type of management-wise differences in the organizational climate of the institutions.
3. To find out the professional attitudes of selected teachers of the intermediate college with respect to (i) teaching profession, (ii) classroom teaching, (iii) child centred practices, (iv) educational process, (v) pupils, and (vi) teachers.
4. To find out sex-wise, location-wise and type of management-wise variations in teacher attitudes.
5. To find out the nature and degree of relationship between the professional attitudes of teachers and the following eight factors of organizational climate : disengagement, hindrance, esprit, intimacy, aloofness, production emphasis, thrust, and consideration.
6. To assess the direction and magnitude of relationship between teacher attitudes and type of climate of a particular institution.
7. To study relationship between aforesaid variable differences and their relationship with the types of organizational climate.

Hypotheses

1. There is no difference in the organizational climate of rural and urban intermediate colleges.
2. There is no difference in the elements of organizational behaviour of government and private intermediate colleges.

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3. There is no difference in the pattern of organizational behaviour of boys' and girls' intermediate colleges.
4. There is no difference in the professional attitudes of teachers of rural and urban intermediate colleges.
5. There is no difference in the attitudes of teachers of government and private intermediate colleges on different dimensions.
6. There is no difference in teacher attitudes of boys' and girls' intermediate colleges.
7. There is no relationship between closed-climate and teachers' professional attitudes.
8. There is no relationship between open-climate and teacher attitudes.

Design and Strategy

This investigation was basically a descriptive survey conducted on the basis of known procedures and techniques. The responses were collected in an interview situation through the administration of a questionnaire (OCDQ) and an inventory (TAI) which are two standardized self-reporting instruments. This study was mainly correlational in nature.

The intermediate colleges of Varanasi district which number 84 constituted the universe of the present study. To make the study representative the colleges of all types were taken on the census-method basis for investigation. Ten teachers from each college were selected to constitute the incidental purposive sample of 840 teachers. The data were collected in an interview situation. The teaching experience of the selected teachers ranges widely.

Method of Data Analysis

The data have been analysed under three sections : (a) Analysis of the data on organizational climate ; (b) analysis of the data on professional attitudes of teachers ; and (c) correlational analysis of the data on organizational climate and teacher attitude.

The collected data were analysed and compared under rural-urban, government-private and boys'-girls' categories of intermediate colleges. The significance of the difference between means of teacher attitude scores on various dimensions of professional attitudes under different dichotomies was tested through the application of the t-test. For identifying the nature of relationship between two variables Pearson's product-moment coefficient

of correlation was calculated. The obtained r 's were converted into Fisher's 'Z' function. The standard error of ' r ' and ' Z ' was computed.

Major Findings

(A) *Organizational Climate of Intermediate Colleges*

1. The over-all view reveals that 48.81 per cent of the colleges fall under open-range climates while the rest have closed-range climates. These results show that closed-range climates have greater hold over educational institutions of Varanasi district.

2. Under the rural-urban dichotomy, it was found that out of 55 rural intermediate colleges two colleges have open-climate, three have autonomous, 15 have controlled, 18 have familiar, 12 have paternal and five have closed-climate.

3. Among the 29 urban institutions, three colleges come under open-climate, eight under autonomous, 10 controlled, four familiar, three paternal and one closed-climate.

4. Out of total rural population of the colleges 36.36 per cent of the colleges have open-range climates and 63.64 have closed-range climates.

5. In the urban population of the colleges 72.41 per cent have open-range climates and 27.59 per cent have closed-range climates.

6. Out of seven government colleges two have open, two autonomous, one controlled and two familiar climate. Five of the colleges (71.43 per cent) have open-range and two colleges (23.57 per cent) have closed-range climate.

7. Out of 77 private colleges three have open, nine autonomous, 24 controlled, 20 familiar, 15 paternal and 6 closed-climate. In total, 36 colleges (46.76 per cent) have open-range and 41 (53.24 per cent) have closed-range climates.

8. Out of 15 girls' colleges five have familiar, four paternal, one closed and five controlled climates. In all, 10 colleges (66.67 per cent) come under closed-range and five (33.33 per cent) under open-range climates.

9. Out of 69 boys' institutions, five have open, 11 autonomous, 20 controlled, 17 familiar, 11 paternal and five closed-climate. In total 36 colleges (52.18 per cent) fall under open-range and 33 (47.82 per cent) under closed-range climates.

10. Under rural-urban dichotomy on autonomous climate the percentage difference is highly significant at .01 level.

11. In the government-private dichotomy the percentage difference between the two groups on open-climate is significant at .01 level.

12. Comparison between the percentage distribution of boys' and girls' colleges under different climates reveals that none of the percentage difference is significant.

13. Comparison between means of rural and urban colleges reveals that on the dimensions of 'disengagement', 'esprit', and 'aloofness' the mean differences are highly significant. Urban means are significantly high on 'aloofness' and 'esprit' and rural mean is significantly high on 'disengagement'.

14. The mean score of girls' institutions is significantly higher on the dimension of 'disengagement' than boys' institutions at .01 level.

15. Government colleges scored significantly higher mean scores on the dimension of 'esprit' and intimacy than private colleges.

16. On the dimension of 'production-emphasis' private institutions are found to score significantly higher mean than government institutions.

(B) Teacher Attitudes

17. Mean differences between rural and urban colleges on various dimensions of professional attitudes of teachers are statistically non-significant.

18. On most of the dimensions of teacher attitudes, urban colleges show higher means than rural colleges.

19. In total, urban institutions go with higher means as compared to rural institutions on teacher attitudes.

20. Differences between the means of attitudes of teachers of government and private colleges on the six dimensions of teacher attitudes are non-significant.

21. In general, means of government colleges are higher than private colleges on most of the dimensions of teacher attitudes. Except on the dimension of teaching profession, private college teachers obtain higher means than the government college teachers.

22. Total TAI mean score of government college teachers is higher than the private college teachers which are 50.86 and 49.77 respectively.

23. There does not exist any significant difference between the means of attitude scores of teachers of girls' and boys' colleges on the various dimensions of teacher attitudes.

24. Total mean score of attitudes of boys' college teachers is slightly higher (49.99 per cent) than attitudinal mean of girls' college teachers which is 49.27 per cent.

(C) *Relationship between Organizational Climate and Teacher Attitudes*

25. Attitudinal means of the open-climate college teachers differ significantly from the mean scores of the closed-climate college teachers on the dimensions of 'attitude towards teaching profession', 'classroom teaching', 'pupils', and 'teachers' at .05 level of significance.

26. Total attitudinal mean score of closed-climate college teachers is significantly higher than the mean of open-climate college teachers at .01 level.

27. The means of the attitudes of teachers of open-climate institutions differ significantly from means of the colleges with paternal climate on the dimension of attitude towards 'teachers' and total TAI score at .05 level of significance.

28. There is highly significant difference between the means of the professional attitudes of teachers of colleges with open and autonomous climates on the dimensions of attitude towards 'teaching profession', 'teachers' and total TAI score at .01 level.

29. The mean difference between the attitudes of teachers of open and autonomous climate college on the dimension of 'attitude towards educational process' is significant at .05 level.

30. Attitudinal means of the teachers of the closed-climate institutions do not differ significantly from teachers of the institutions with paternal climate on most of the dimensions of teacher attitudes.

31. On the dimension of 'attitude towards educational process' the closed-climate college teachers' mean score varies significantly from the attitudinal mean score of the teachers of the colleges with paternal climate at .05 level.

32. Teachers of the colleges with autonomous climate do not have statistically significant mean difference from teachers of paternal climate college on most of the dimensions of professional attitudes. Except on the dimension of 'attitude towards educational process' the difference between the means of the two groups is significant at .05 level.

33. If the pattern of relationship under the two polar climates, viz. open and closed is taken up, it is clear that under open-climate there exists statistically significant positive relationship between 'thrust' and 'attitude towards child-centred practices', 'pupils' and 'total TAI scores'. The coefficients of correlation are .97 (significant at .01 level), .94 and .91 (both are significant at .05 level) respectively.

34. Under closed-climate factor of 'disengagement' shows significant negative relationship with attitude towards 'classroom teaching' and

'teachers' with a coefficient of .87 and .86 respectively. Both are significant at .05 level.

35. Under controlled climate, factor of 'intimacy' correlates significantly positively with teacher-attitude towards 'classroom teaching' at .05 level.

36. Under controlled climatic conditions the climate factor 'production-emphasis' shows significant positive association with 'attitude towards educational process' and 'teachers' at .05 level.

37. Familiar climate factor 'disengagement' shows significant negative relationship with attitudinal factor of 'classroom teaching' at .05 level.

38. Under familiar climate the climate factor 'aloofness' shows significant positive association with attitude towards 'teachers' at .05 level.

39. Under paternal climate there exists highly significant negative relationship between climate dimension of 'hindrance' and attitude towards 'child-centred practices', 'educational process' (both significant at .05 level) and 'pupils' (significant at .01 level).



A Study of Attitudes towards Mathematics of Secondary School Students

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MATHEMATICS is regarded as an important subject of study at the school stage. For qualitative improvement of mathematical knowledge and its application, it is of paramount importance to have information regarding the attitudes of teachers and pupils towards the subject. It is a common experience of all of us that many students consider mathematics as a dry and stuffy subject whereas many other consider it as an interesting one. Research workers in foreign countries have attempted to study the attitudes of students towards mathematics from many angles. The literature on the subject produced, mainly during the past two decades, were viewed.

The problems of attitude toward mathematics has been studied by research workers in the past, mainly by the use of Thurstone type and Likert-type attitude scales. Both the scales have certain advantages and disadvantages over each other. An attempt has been made in the present study to measure the attitude towards mathematics by Likert type scale. As no reliable and valid scale to measure attitude towards mathematics was available for the universe of this study, it was decided to develop a Likert-type attitude scale to measure attitude towards mathematics.

Researchers on the subject in other directions have shown that some background variables play an important role in the development of attitude toward mathematics. Among the background variables selected for the purpose of study were parents' qualifications, profession, income, family size, types of early institutions and reading facility. In order to study the attitude towards mathematics in relation to the above-noted variables, 15 hypotheses were formed for testing.

Method

For constructing the attitude-scale, opinions were collected about mathematics from 500 students of local secondary schools. These opinions were converted into 70 statements. All these statements were judged by five judges and after certain modifications 30 of them were approved for the scale.

Finally, scale-value and t-value of each statement were calculated. Reliability of scale was computed by split-half method and after applying

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the S.B. formula, the coefficient of reliability was determined to be 0.72. The scale, along with a personal data form which aimed at eliciting information about the background variables proposed to be studied in this investigation were applied on a representative sample of the population. The population of the study consisted of boys and girls reading in Class X and XI of secondary schools lying in the area of Patna Municipal Corporation. The stratified random sampling procedure was adopted for selecting a sample of study and six boys' schools and three girls' schools were included in the sample. Finally, the sample consisted of 505 students (345 boys and 160 girls).

After the administration being over, the answer sheets were scored. The nature of the distribution of the attitude scores for the whole sample as well as for boys and girls sub-samples were examined separately. The chi-square was applied to test the goodness of fit of the data and it was found that the distribution of various scores were not deviating significantly from normality.

Hypotheses

The following 15 hypotheses were proposed to be tested :

1. There is no difference in attitude towards mathematics among boys of different parental qualifications.
2. There is no difference in attitude towards mathematics among girls of different parental qualifications.
3. There is no difference in attitude towards mathematics among boys of different parental profession.
4. There is no difference in attitude towards mathematics among girls of different parental profession.
5. There is no difference in attitude towards mathematics among boys of different parental income.
6. There is no difference in attitude towards mathematics among girls of different parental income.
7. There is no difference in attitude towards mathematics of boys from different family size.
8. There is no difference in attitude towards mathematics of girls from different family size.
9. There is no difference in attitude towards mathematics of boys on the basis of type of institutions they attended earlier.
10. There is no difference in attitude towards mathematics of girls on the basis of institutions they attended earlier.
11. There is no difference in attitude towards mathematics of boys

- with separate study room and with common study room.
12. There is no difference in attitude towards mathematics of girls with separate study room and with common study room.
 13. There is no difference between boys and girls in attitude towards mathematics.
 14. There is no difference between boys and girls in respect of their achievement in mathematics.
 15. There is no relationship between attitude towards mathematics and achievement in mathematics.

The first ten hypotheses were tested by applying analysis of variance technique; the t-test was applied to test the next four hypotheses and the last one was studied by correlational method.

Results

Table 1 gives the results of the analysis of variance in respect of first ten hypotheses. Tables 2 and 3 give the results of the computation of t-values and r respectively.

TABLE 1
RESULTS OF ANALYSIS OF VARIANCE

<i>Hypotheses</i>	<i>DF</i>	<i>Value of F</i>	<i>Level of Significance at .05</i>
1	4 and 340	6.12	Significant (S)
2	4 and 155	1.64	Not significant (NS)
3	5 and 339	2.40	S
4	5 and 154	1.39	NS
5	2 and 342	4.40	S
6	2 and 157	3.89	S
7	3 and 341	3.62	S
8	3 and 156	2.48	NS
9	3 and 341	2.15	NS
10	2 and 157	1.008	NS

TABLE 2
RESULTS OF T-TESTS

<i>Hypotheses</i>	<i>DF</i>	<i>Value of t</i>	<i>Level of Significance at .05</i>
11	93 and 252	2.22	S
12	88 and 72	0.13	NS
13	160 and 345	2.38	S
14	160 and 345	2.33	S

TABLE 3
RESULTS OF COMPUTATION OF t

<i>Hypothesis</i>	<i>N</i>	<i>Value of t</i>	<i>Level of Significance</i>
15	345	-- 17	NS 1.05 and .011
	and 160	05	NS 1.05 and .011

Conclusion

In short, of all the variables studied it is found that parents' qualifications influence the attitude toward mathematics of boys only whereas girls remain unaffected by the qualifications of parents. No strong evidence is found to prove the influence of parents' profession, family size, parents' income and study room facility on attitude towards mathematics of either boys or girls.

In the light of the results obtained in this study, it is of interest to note that attitude toward mathematics of teachers is worth studying. The study of attitude toward mathematics and personality variable will, the investigator feels, throw some more light on the subject.



A Study of Self-Concept of Adolescents and its Relationship to Scholastic Achievement and Adjustment

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SELF-CONCEPT is, perhaps, the single most important attribute and the key to understanding the behaviour of an individual. There has been a great deal of research into the nature of the relationship between self-concept and academic achievement during the past quarter of a century. In that time the self-concept has assumed a significant place in both psychology and education. The interest of the psychologist is to study the self-concept as the determinant of one's general behaviour, whereas that of the educationist is to study it as the determinant of one's educational behaviour. Most of the present-day educationists and psychologists concur that an individual's self-concept is a critical facet of his personality. Hence the importance of the role of self-concept as a determinant of human behaviour and its acceptance as a concise measure of personality is increasingly realized. The present study was undertaken to achieve the following objectives :

1. To study the self-concept of the adolescents in relation to sex, intelligence and place of residence (rural-urban).
2. To find out the relationship between self-concept and scholastic achievement.
3. To find out the relationship between self-concept and adjustment.
4. To construct a test of self-concept. This objective was formulated in view of the fact that no satisfactory tool to measure the self-concept of the adolescents in the Hindi-speaking areas was available.

Hypotheses

In pursuance of some of the objectives of the study stated above, hypotheses were formulated and stated in the null form so that they could be tested statistically.

H₁ There is no sex difference in the self-concept of the adolescents.

H₂ There is no relationship between intelligence and self-concept of adolescents.

H₃ There is no difference in the self-concept of urban and rural adolescents.

*Thesis submitted to Agra University (1978)

- H₄ There is no relationship between self-concept and achievement.
 H₅ There is no relationship between self-concept and adjustment of the adolescents.

Method of Study

The descriptive method of research was followed to carry out this study. Under the broad canvass of this method differential and correlational techniques of research were used. Hereby differential technique is meant technique of research used to test the hypothesis of no difference between two parameters. This technique was used to test H₁ and H₄. The correlational technique was used to test H₂, H₃ and H₅. One objective of the study was to construct a test to assess the self-concept of the adolescents. Standard method of preparing a personality test was followed to achieve this objective.

In this study intelligence and adjustment were measured by administering (i) *Samanya Mansik Yogyata Pariksha* (A test of general mental ability) by M. C. Joshi and (ii) *Vyaktitva Parakash Prashnavali* by M.S.L. Saxena, respectively. Students' marks obtained at the high school examination of U.P. Board (1976) served as an index of their scholastic achievement. A test of self-concept, *Swatva-Bodh Parikshan* was prepared by the investigator and used to find out the self-concept of the adolescents.

The sample of the study was taken from the city of Agra and two of its Tehsils -- Bah and Fatehabad. Out of 765 students 450 were boys (217 from rural and 233 from urban) and 315 were girls (108 from rural and 207 from urban). The tests were personally administered to students of Class X and scored according to the instructions given in their respective manuals. The data were analysed by computer at the Central Computer Centre of the Delhi University.

Findings

1. In respect of H₁, it was found that the global self-concept of the male adolescents was significantly different from that of the female adolescents. This difference was found both in the urban and rural populations. The sex difference was also found to be significant in respect of all the dimensions of self-concept. It was found that male adolescents had better global self-concept than the female-adolescents.

2. In respect of H₂, a positive and significant correlation between self-concept and intelligence was found. The relationship was found to be significant at .01 level for the total population as well as for the male-female and urban-rural sub-populations of the adolescents. However, the correlations lay in the range 0.22 to 0.31 and variances ranging only from

4.84 to 9.61 per cent in the self-concept scores were accountable by intelligence.

3. In respect to H_{1b} , it was found that the difference between the means of the self-concept scores of the urban and rural adolescents was not significant ($P > .05$). This lack of difference existed even when the urban boys were compared with rural boys and urban girls with rural girls. Moreover, on the individual dimensions of the self-concept the urban-rural differences were not significant.

4. By testing H_4 it was found that a positive and significant correlation ($P > .01$) existed between global self-concept and scholastic achievement. Also, this relationship was positive and significant for male-female and urban-rural sub-populations of the adolescents. Interestingly, the relationships between self-concept and scholastic achievement was stronger among the girls than among the boys.

5. Regarding H_5 , a positive and significant correlation between self-concept and adjustment was found. This relationship was significant at 0.01 level for the total population and also for male-female and urban-rural sub-populations separately. It was also found that the correlations of adjustment with all the dimensions of self-concept were positive and significant at .01 level of significance. However, the correlation between the concept of intellectual ability and adjustment was not found to be significant for the sub-population of female adolescents.

Conclusions

1. The self-concept of the adolescents as measured by the self-concept test is a personality characteristic which is normally distributed in the population of adolescent students. Anybody who scores 38 or more can be said to have a good self-concept and who scores 26 or less to have poor self-concept. The middle one has average self-concept.

2. In the Indian cultural matrix there tends to be sex difference in the self-concept. It seems that male adolescents receive more encouragement and attention in the home and society than the female and develop brighter self-concept than females. Similarly, more intelligent adolescents tend to have brighter self-concept than the less intelligent ones. The study also reveals that the extent of relationship between intelligence and self-concept does not change with place of residence (urban-rural) or with sex.

3. One interesting conclusion of this study is that rural students tend to have as good self-concept as the urban ones and the rural environment is not uncongenial for the development of adequate self-concept as is sometimes believed.

4. It is the satisfying and frustrating experiences of the adolescent in his social milieu in which he interacts with the members of the family, peers and other people that form his self-concept and not the richness or poverty of that milieu per se.

5. There exists positive relationship between self-concept and achievement and the adolescents with good self-concept are likely to achieve more than those with poor self-concept.

6. An interesting conclusion of this study is that scholastic achievement correlates high with the concept of one's mental health and of socio-economic status.

7. This study shows that there is strong relationship between self-concept and adjustment. Good self-concept depends on good adjustment and vice versa. But the adolescents who have very high concept of their socio-economic status in the rural areas may not have good adjustment in the changing socio-political conditions.



Construction of a Battery of Objective Tests for Assessment of Proficiency in Writing English Composition

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ENGLISH COMPOSITION occupies a pivotal position in English language courses and certain positions or jobs in public and private sector require an ability to produce good piece of composition at short notice. Hence we need to select only those students for the college course who have the potentiality to benefit in this aspect of English the most. For the screening after five-year school course on the basis of proficiency that the students have already developed in English composition it is feared that a subjective assessment of a composition given for the test may not be reliable and fair. Hence, an attempt to develop a battery of objective tests for valid and reliable assessment was considered worthwhile.

Objectives

1. To assemble a battery of objective tests for the assessment of proficiency in writing English composition of the high school finishers in Hindi-speaking regions, and to give the multiple regression equation of the battery.
2. To construct reliable achievement tests for measuring the different aspects of the ability to write in English of rural students in Himachal Pradesh.
3. To find out correlations between these attainments.
4. To select the tests suitable for the proposed battery.

Instruments

On a rational and tentative basis it was decided to construct or procure instruments for assessment of proficiency in the following aspects of English which seems to form the basis of proficiency in a written English composition. It was decided to select appropriate tests for the battery out of the following by suitable screening technique : (i) Spelling, (ii) Punctuation, (iii) Vocabulary (phrases), (iv) Vocabulary (words), (v) Paragraph organization, (vi) Applied grammar, (vii) General knowledge, and (viii) Hand-writing.

Out of the above (i), (ii) and (vi) were taken from Sinha's thesis¹ but the

Thesis submitted to Kurukshetra University (1977)

¹ H.C. Sinha Factorial analysis of different aspects of English attainment of Hindi-speaking students. Unpublished Ph D. thesis, Gorakhpur University, 1967

reliability of their measures was redetermined for the population of this study. The rest of the tests were constructed after proper item analysis, item selection and determination of reliability. Their validity was taken for granted since their coverage and objectives were in accordance with the content area they covered and the level of the population.

For the construction of the instruments, except the handwriting scale, the investigator followed the following steps :

1. Prepared large tests for try-outs and analysed the items by administering them to 370 students and picked up the top and the bottom 27 per cent on the basis of the total scores.
2. Prepared item-wise charts for every test to find out the number of persons who had done each item correctly in the top and the bottom piles. The average of the proportion of the students responding correctly to an item was taken to be its difficulty value.
3. The biserial correlation of each item with the total score was determined on the basis of J.C. Flanagan's² abac.
4. The items were selected on the basis of the undermentioned criteria :
 - (i) Mostly, the item selected should be of medium difficulty, with some of high and some of low difficulty values.
The range of medium difficulty was kept from .30 to .70.
 - (ii) Further, the items selected should cover the required aspect of attainment adequately in keeping with the prescribed courses of the Board of School Education, Himachal Pradesh and the PUC class.
 - (iii) Lastly, the selected items in each test or any distinct parts of the test should be even in number so that there should be no difficulty in splitting them up into equal numbers of odd and even items, at the time of computing the split-half reliability of each test.

The final draft was prepared by arranging the selected items in an ascending order of difficulty. The scores of odd and even items of finalized tests after they had been administered to 500 students for the selection of the battery components were used for the computation of the reliability coefficients of all tests. The amount of time taken by about 90 per cent of the students of the first batches to complete a test was fixed as the duration of time for the test. Table 1 shows the reliability and time thus determined.

² J.P. Guilford. *Psychometric methods*. Bombay . Tata McGraw Hill Company 2nd edition, 430-431, 1954

TABLE 1

<i>Sr. No.</i>	<i>Name of the Test</i>	<i>Time Limit (Minutes)</i>	<i>Reliability Coefficient</i>
1	Spelling	20	.98
2.	Vocabulary No. 1	30	.91
3.	Vocabulary No. 2	35	.91
4.	Applied Grammar	35	.93
5.	Paragraph Organization	30	.79
6.	Punctuation	15	.91
7	General Knowledge	25	.91

The handwriting scale was evolved by Thurston's equal-appearing interval method. The essays that were written by the students for the criterion scores were sorted out into 47 packets of different varieties. Then 30 judges were asked to sort out specimens, one from each packet, into nine piles in ascending order of their quality. After they had done that the median and the quartile values of each specimen was determined. Fortunately all the 47 met the following criteria and were included in the scale after arranging them in order of their scale values :

1. The scale value should be spread over the entire range of the scale.
2. None of the quartile values should be more than 1.50.

The criterion scores were obtained by making the students in the sample (500) write three essays of descriptive, imaginative and narrative type, namely, the following and getting each essay assessed by three component evaluators out of 10 marks :

1. Narrate the events in a marriage that you have attended.
2. Describe a village in hills.
3. Imagine and describe the damage caused by a landslide.

The score of each student was taken to be the total of the marks awarded to him by all the examiners in all the essays. As there were nine evaluations for each student his total score was out of 90.

Sample

The population consisted of the students studying in the PUC of the Himachal Pradesh University. For sampling the population was split into 'urban' and 'rural' strata and from each cluster of students in the PUC section of the institutions shown in Table 2 were taken to make up almost equal totals for the final tests.

TABLE 2

<i>Sr. No.</i>	<i>Name of the Institution</i>	<i>No. of Students</i>
Rural		
1.	Government College, Una	81
2.	Government College, Bilaspur	81
3.	Government College, Nalagarh	81
Total		245
Urban		
4	SDB College, Simla	85
5	Government College, Dharamshala	96
6.	Government College, Mandi	75
Total		225

Collection of Data

The three essays were got written by the regular teachers in their composition periods of 35 minutes each, while the other tests were administered by the researcher himself in two lots on two consecutive dates in each of the institutions mentioned in Table 2.

Selection for the Battery

The mean and standard deviation of all the nine variables (one dependent and eight independent) and the correlations of all of them with each other were computerized and for the purpose of identifying the crucial variables for predicting college student's proficiency in writing English composition (criterion), the step-wise regression analysis (Efroymson) was performed by the computer, till all the independent variables were exhausted. The final data supplied by the computer was as follows :

MULTIPLE REGRESSION

Dependent Variable	Var 001	Essays	Variable List Regression List
SUMMARY TABLE			
Variable		Multiple R	R Square
4	Vocabulary Test-2	.58590	.34328
6	Paragraph Organization Test	.62942	.39617
9	Handwriting Skill	.66034	.43605
2	Spelling Test	.68259	.46592
8	General Knowledge Test	.69534	.48350
3	Vocabulary Test 1	.69988	.48984
5	Grammar Test	.70162	.49227
7	Punctuation Test	.70179	.49251

Variable	RSQ Change	Simple R	B	Beta
4	.14328	.58590	.22107	.20
6	.05289	.46550	.53623	.14
9	.03988	.31470	.95923	.17
2	.02987	.54320	.07414	.17
8	.01758	.42490	.12990	.15
3	.00634	.54870	.08914	.10
5	.00243	.52960	.06543	.07
7	.00024	.41350	.00784	.02

As the variable 7 increased the multiple R by .00017 only, the researcher decided to discard it. After this decision the regression equation with beta coefficients for standard scores was written on the basis of the following, supplied by the computer prior to the addition of variable 7,

Variable	B	Beta	STD Error B	F
4	.21720	.20055	.05573	15.187
6	.52499	.14538	.14311	15.458
0	.96111	.17089	.18594	26.717
2	.07293	.17654	.01843	15.660
8	.12887	.14990	.03140	16.849
3	.08669	.09766	.04463	3.773
5	.06303	.07584	.04103	2.359
	.06433			

The regression equation for the standard scores thus came to be the following:

$$YZ_1 = .200Z_{01} + .145Z_{02} + .171Z_{03} + .176Z_{04} + .150Z_{05} + .098Z_{06} + .076Z_{07}$$

The partial regression coefficients 'b' for raw scores were calculated from the beta coefficients by the formula:

$$b_{12 \dots} = \frac{(SD_1)}{(SD_2)} \text{ Beta } 12 \dots \quad (1)$$

and the constant 'a' for a complete regression equation of raw scores was computed by the formula:

$$a = M_1 - bM_4 - bM_6 - bM_9 - bM_2 - bM_8 - bM_3 - bM_5 \quad (2)$$

The equation then came to:

$$Y = .171X_1 + .381X_2 + 1.155X_3 + .055X_4 + .151X_5 + .010X_6 + .0006X_7 + 6.075$$

³ (1) and (2), J. P. Guilford, *Fundamental statistics in psychology and education*, (International student edition) 4th edn., 396-397, 1965

□

Research Notes

A Note on the Private Sector in Education

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WHAT ARE THE CONSEQUENCES for educational development policy in many Third World countries of the often widespread existence of private enterprise in certain sectors of formal education? Here certain well-known private correspondence institutions such as the British institutes are excluded from consideration. It should be obvious that the nature of the topic excludes from our purview, countries such as China and Cuba which do not permit the existence of private enterprise in education.

Private, i.e. non-governmental, voluntary, groups in Asia and Africa established the first schools which provided western education for following reasons: to propagate the Christian gospel; to take advantage of a growing demand for western education among the local people who saw it as true vocational education, that is, as *the* avenue for getting jobs in the commercial and governmental institutions of the colonial power; to satisfy a genuine desire among the local people to acquire western knowledge. A notable exception was 19th century Japan where the government took the initiative for introducing western education. We have a tendency to assume that only westerners-- particularly missionaries--established these early schools. Although missionaries probably did establish the very first schools in many parts of Asia and Africa (and thereby precipitated a number of far-reaching social changes) individual local entrepreneurs, religious and cultural groups (not necessarily associated with Christianity) were also quick to respond to the demand for this new form of education. Some of these schools received financial support from the colonial administration; others were supported by wealthy benefactors. But grants and donations were not enough to meet their expenses. So many of the schools charged fees for each student. From the early days of western education, the private, fee-charging schools were different in some important ways from the government schools which came into existence later and did not charge fees. The children in private schools came from relatively affluent but not necessarily elite families which could afford to pay the fees. The fee-paying parents demanded and got a higher quality academic education for their children in the language of the colonial country. These private schools

imitated as closely as possible the elite schools of the colonial country. For instance, many schools in India had -- and still have -- headmasters, senior masters, assistant masters, chapels, common rooms, houses, school prefects, house prefects, etc. reminiscent of the elite English public schools. Graduates of these schools came to occupy positions of prominence in the important economic, political and cultural institutions of their country in the later part of the colonial era.

When these countries achieved political independence, many colonial administrators had to depart. Their positions were taken over by many early graduates of the private schools; more often than not they looked for individuals with backgrounds similar to their own to occupy the positions they were vacating. They also looked to their *alma maters* for new recruits. In poor countries where the ratio of educated persons to available jobs is extremely high, the person who knows a person who knows the employer has a much greater chance of getting a job than the poor fellow who has the same or even better qualifications but does not have any influence. "The old school tie" shows its true colours with a vengeance in this context.

Let us recall that in the fifties practically every government in Asia, Africa and Latin America was committed to a policy of expanding access to education as rapidly as possible. Since governments did not have all the resources to implement this policy, many of them found themselves in the position of tacitly supporting private school development. They did so by permitting educational entrepreneurs, who had the resources or had the connections to import resources from abroad, to open schools. Many governments have even encouraged the entrepreneurs by giving them grants for implementing government policy! In return, the schools had only to meet minimal government regulations.

Many middle class parents as well as parents whose aspirations for their children are to move them up to middle class status see schooling as a necessary precondition for personal success. What some writers see as a paradox, as the educated unemployment situation gets worse, the pressure for expansion of certain sectors of education increases, makes very good sense in many developing countries. Although devaluation of credentials has occurred, a job you could reasonably expect to get with a high diploma thirty years ago now requires a Bachelor's degree, educational certificates have not become useless. Given the present political and social structures, most parents are absolutely right in their perception that in order to scramble for better jobs and security, having the right diploma or degree is a necessary but by no means sufficient first step. An analogy with a lottery is in some respects tragically apt, in order to get a chance

at any of the prizes, good job, economic security, social status, etc. it is necessary to buy a ticket (complete high school, get a diploma, etc.). If certain lottery ticket agents (good schools) can show that some of the tickets they sold won prizes (their graduates got good jobs), many people will rush to buy tickets from them. Parents who can afford to do so, sometimes under great financial strain, will continue to demand good private schooling in order to increase all the possible odds for the economic and social success of their children. This fact accounts in no small measure for a widely acknowledged development in many Third World countries: Secondary and tertiary education are expanding faster than elementary and adult literacy education. Unlike earlier colonial days, because the demand for student places in these schools far exceeds supply, the owner-operators can charge high fees and yet economize on personnel costs, e.g. teachers, clerks, etc., which is the most expensive recurring category in any school budget because supply of personnel far exceeds demand. The consequences, particularly for genuine teaching and learning, are many but let us not linger to comment on them. Privately owned and operated schools in many poor countries have become an excellent investment for entrepreneurs. Such schools are a 'growth industry' in contrast to many private schools in the west.

In general terms, we may characterize the influence of the private education sector in poor countries as shown in Table 1.

TABLE 1

<i>Stage of Education</i>	<i>Numbers</i>	<i>Location</i>	<i>Influence of Educational Policy</i>
Nursery/Kindergarten	Very few in number but they vastly out-number government preschools	Urban areas	Not significant because most governments do not have comprehensive policies in this area
Primary/Elementary	Very few in number and percentage	Urban areas	Not significant
Middle school/ Elementary	From a few in some countries to a large number in others	Mostly urban areas	Very significant irrespective of numbers
Post-secondary/ Universities	Very few	Urban areas	Significant in countries which allow private institutions; indirectly significant in others which allow private secondary schools

The reasons for and implications in the disparity in the prevalence of the entrepreneurial sector at different school levels and in different geographic, rural versus urban regions are many and complex. They need not be considered now. It may, however, be useful to comment on some of the consequences of an entrepreneurial educational sector for urgent necessary changes in education in the poor countries.

First, the educational entrepreneurs can (and very often do) effectively lobby against the redirection of the state's educational budget from traditional academic education to innovative forms of education. In most poor countries if the state pays for secondary and tertiary education *even in government owned and operated institutions* such support tends to be an indirect subsidy from the poor to the rich. Privately owned and operated schools which receive government grants are even less indirect recipients of such subsidies.

Second, private schools can either openly oppose or, as they do, more often, quietly subvert many well-intentioned educational reforms. This has been particularly true of attempts to change the excessive academic focus of secondary education. It is often asserted that poor people support academic education and are the opponents of attempts to provide basic education to their children. The very poor people, most but not all of whom are part of 'the traditional sector' and live in villages, do not see entering 'the lucrative modern sector' as a sufficiently viable option to care about opposing such attempts. For the statistical minority that does enter it, the modern sector is not lucrative. Only those relatively few people who can be classified as at least aspiring middle class will oppose socially relevant basic education because it can potentially shut them out. But even more emphatically, the articulate spokesmen for "quality education" and parity with international standards oppose such policies because, among other things, the vigorous prosecution by government of such policies will divert funds away from secondary and higher education.

Third, so long as these schools continue to flourish, the gap between the rich and the poor within these countries will continue to widen. Many authors have noted the fact of the wealthy having a head-start in education and the rich being able to buy a better education for their children than the poor. Sometimes, the entire cause appears to be attributed to advantageous family circumstances. Of course, a child whose parents are educated, whose life is surrounded by books and who eats nutritious food has the odds in his favour in rich and poor countries. In poor countries, however, an extremely important part of the process by which the rich transmit their advantages to their offspring is through private schooling.

Fourth, the private sector participates with other groups to actively hold up the western model of education as the only one worthy of emulation and the west as the acme of all—instead of just certain types of—modern knowledge. So long as such a view wins widespread acceptance in the poor countries, neocolonial thinking about education will continue to distort local educational priorities. And the west will continue to be unusually attractive to scholars from poor countries which will contribute to further widening the gap between the rich and poor countries.

Referring to the case of India, Raja Roy Singh (1964), the then Joint Secretary in India's Federal Ministry of Education, said :

... nearly 70 per cent of the secondary schools in the country and 80 per cent of the colleges are under private management. I do not wish to underestimate the very great contributions the private (enterprise) has made to the development and growth of education in India but ... the privately managed schools do not represent public control of education . . . The total contribution of private managements to educational expenditure is of the order of only 7 per cent . . .*

What was true of India in 1964 is still largely true in 1977; India is not the only former colony or poor country where private enterprise in education exists.

Yet in the voluminous literature on education and development, the implications of the prevalence of a powerful private sector in education is seldom discussed. One reason for the lack of attention to this matter in North America may well be that private ownership is not widespread there. In most of North America, most of the schooling is publicly funded and controlled. There are, to be sure, private schools but they are mainly for the children of the upper classes. So it is very possible that North American writers interested in education for development fail to perceive the importance of private schools in the poorer countries. Interestingly enough, private schools are becoming more popular at least in the United States and are beginning to receive more scholarly attention. But private schools are an important part of the educational system in the United Kingdom and yet even British writings on education and development do not pay sufficient attention to the subject.

From a different perspective, those who support the existence of an entrepreneurial sector in education can make a good case for their point of view. In my judgement, an even better case can be made for a very different kind of private initiative (e.g. non-profit, cooperative associations)

* Raja Roy Singh. *Emerging problems of Indian education*. Delhi : Alumni Association, Central Institute of Education, 12, 1964

in the field of education. This note is a plea for critical discussion—based on research—of the advantages and disadvantages of different types of non-governmental educational institutions. In such research, we should also find out what has happened to proposals to reduce the power of the entrepreneurial sector. One proposal being instead of the government subsidizing the education of relatively affluent children in private schools, the tuition and other fees for them should reflect the true costs of their education. Discussions on this important aspect of education in many poor countries are overdue.

[.]

Social and Emotional Adjustment Patterns of Adolescent Boys and Girls at Various Levels of Socio-Economic Status and General Intelligence

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THE PROBLEM of student adjustment is the burning problem of our country, keeping in view the student turmoil. So, this problem has attracted the attention of the social scientists and the educational administrators. A few studies have been conducted in the area of personality adjustment of adolescents by Nanda (1957), Kakkar (1964), Patel (1967), Agrawal (1970), Sen (1971) and Mattoo (1972). The areas covered by these studies on adjustment include psychological needs and adjustment, adjustment of school children as seen by parents, teachers and students themselves.

It is important to study the personality adjustment pattern of adolescent boys and girls of different categories, so that they may be properly guided or counselled, and the environment, wherever possible, may be improved to bring about better adjustment. The aim of the present study is to explore the average adjustment differences at different levels (higher, middle and lower) of socio-economic status and general intelligence among adolescent boys and girls of the age-group 14½ years. Their adjustment needs greater attention, since they have to face the challenge of a long preparation for entering an occupation, in changing social life since independence. So, the problem of their adjustment is very important for an educator.

Objectives

1. To test the significance of the differences in social and emotional adjustments of adolescent boys and girls of different levels (higher, middle and lower) of general intelligence and socio-economic status.
2. To see interactions of sex, general intelligence and socio-economic status in the two areas of adjustment under objective 1.
3. To interpret the statistical results obtained, and to study their educational implications.

Tools

1. 'BPT 8 verbal group test of intelligence of 14 years,' of Bureau of Psychology, Allahabad, was administered for demarcating the three levels of intelligence

2. Kuppuswamy's urban socio-economic status scale was used for demarcating the three levels of socio-economic status.

3. Personality adjustment inventory of M.S.L. Saxena, Department of Psychology, Banaras Hindu University was used for obtaining the criterion scores of social and emotional adjustments only.

Sampling and Collection of Data

As three-way analysis of variance was to be made to see the effect of the independent variables of sex, general intelligence and socio-economic status on the dependent variable of adjustment in the two different areas, one by one, and as each of the independent variable had to be categorized into the following manner, there were 18 treatments in all, in each of the two analysis of variance.

Sex (2) (Boys, Girls)

Socio-economic status (3) (Higher, Middle and Lower Levels)

General Intelligence (3) (Higher, Middle and Lower Levels)

(Number of treatments = $2 \times 3 \times 3 = 18$)

For getting 20 replications for each of the 18 treatments of the factorial design, mentioned above, the investigator resorted to 'stratified random cluster sampling' from 10 higher secondary schools of Delhi, for boys and girls. The total number of students in the pool came to be 600. They were given Kuppuswamy's socio-economic status scale (urban, npr) and verbal group test of intelligence and Saxena's adjustment inventory, and 20 representatives of each of the 18 categories were sorted out from this pool. Thus, in all, 360 cases were taken for the final analysis.

Statistical Analysis of Data

For each of the two areas of adjustment a separate three-way analysis of variance was made by setting the design in the form of factorial experiment of $2 \times 3 \times 3 = 18$ treatments.

Results of Analysis of Variance

Tables 1 and 2 summarize the results of the analysis of variance of social and emotional adjustment scores.

Effect of General Intelligence

As general intelligence has been found to have a differentiating role in both social and emotional adjustment areas, the adolescents at the lower intelligence level, who are the worst adjusted, needed the greatest attention. For them, the courses of the school should be centred around such

TABLE 1
ANALYSIS OF VARIANCE (SOCIAL ADJUSTMENT)

Source of Variation	Sum of Squares	D.F.	Mean Square	F	Significant at 0.5 level
General intelligence	4136.17	2	2068.08	29.72	Significant
Socio-economic status	41.10	2	20.55	2.98	Insignificant
Sex	0.80	1	0.80	—	Insignificant
Intelligence × Socio-economic status	180.25	4	45.06	6.51	Significant
Intelligence × Sex	1.67	2	0.83	—	Insignificant
Sex × Socio-economic status	16.78	2	8.39	1.21	Insignificant
Intelligence × Status × Sex	99.98	4	24.99	3.62	Significant
Error within treatment	2363.44	342	6.90		
Total : 6840.19		359			

TABLE 2
ANALYSIS OF VARIANCE (EMOTIONAL ADJUSTMENT)

Source of Variation	Sum of Squares	D.F.	Mean Square	F	Significant at 0.05 level
General intelligence	6952.20	2	3476.10	331.10	Significant
Socio-economic status	89.04	2	44.74	4.26	Significant
Sex	82.07	1	82.07	7.82	Significant
Intelligence × Status	167.75	4	41.93	3.99	Significant
Intelligence × Sex	64.55	2	32.27	3.07	Significant
Sex × Status	11.46	2	5.73	—	—
Intelligence × Status × Sex	72.07	4	18.01	1.72	Insignificant
Error within treatment	3591.69	342	10.50		
Total : 11031.28		359			

work as does not require much of scholastic ability, in which they are found wanting.

Effect of Interactions of General

Intelligence × Socio-economic Status

The analysis of significant interactions between intelligence and socio-economic status, social and emotional adjustments show that the adolescents of higher intelligence group when born in poor homes have a significantly poorer social and emotional adjustments than their counterparts born in middle and upper class homes. In order to enrich the environment of the gifted children to improve their adjustment up to the level expected of their intelligence, they should be kept in special schools, like the public schools and the parents should also be told about the proper child rearing practices.

*Effect of Interactions of the
General Intelligence \times Sex*

The interaction between intelligence and sex has come out to be significant in emotional adjustment only. It has been found that though boys are, in an average, significantly superior to girls in emotional adjustment, those belonging to the low intelligence group show almost as poor an emotional adjustment as the girls of the same group. This means that boys of low intelligence group should be handled as carefully as the girls, so that their emotional adjustment is improved.

*Effect of Intelligence \times Socio-economic
Status \times Sex*

There is a significant triple interaction between intelligence, socio-economic status and sex in the area of social adjustment only and it has been found that though boys and girls of the higher intelligence group are almost at par in social adjustment at the higher socio-economic status level, girls are significantly superior to boys at the middle levels and there is a reversal at the lower level and girls become significantly inferior. This gap between the social adjustment of boys and girls of higher intelligence at the middle and lower socio-economic strata is probably due to social factors and there seems to be nothing biological about it, since there is no difference at the higher socio-economic status, hence it may be made up by paying proper and equal attention to social training of both the sexes.

Effect of Socio-economic Status

The differences in the adjustment of adolescents of the three levels of socio-economic strata have been found significant in the emotional adjustment only. The difference in social adjustment is not significant because in our society the adolescents move within the social circle of their own socio-economic stratum.

The emotional adjustment of adolescents of the middle and the lower strata of society, though almost at par, is significantly inferior to that of their counterparts of the higher stratum. This is probably due to the financial stringency at home, which creates a lot of problems and worries. As a matter of fact, the financial stringency in our country starts from the middle stratum itself. To meet this situation the state should take off the financial burden of children's schooling from the shoulders of the parents in straitened circumstances.

Sex

The two sexes differ from one another in the emotional adjustment only. This may be due to either constitutional or biological differences in the two sexes, or greater sexual restraints on the girls in our society. But anyway, the teacher and the parents have to see that the girls in their charge are given proper affection and attention so that they are least disturbed. Our present examination system causes a great emotional strain on all the examinees, especially the girls, and hence it should be less fearful and awful.

References

- Anastassi, Anne. *Differential psychology*. New York : The Macmillian Company, 1958
- Bales, Robert Fred. *Personality and interpersonal behavior*. New York : Holt & Rinehart, 1970
- Buch, M.B (Ed.) A Survey of research in education Baroda : C.A.S.I, M. S. University of Baroda, March 1974
- Edwards, A L. *Experimental designs in psychological research*. Henry Holt and Co., 1974
- Guilford, J P. *Fundamental statistics in psychology and education*. McGraw-Hill Book Co , 1965
- Kuppuswamy, B P. *Socio-economic status scale (urban)*. Delhi : Mansayan, 1964
- Melita, Prayag (Ed.) *The Indian youth*. Bombay : Somaiya Publications Pvt. Ltd., 1971
- Mukerji, D P. *Problems of Indian youth*. Bombay : Hind Kitab, 1965
- Sexana, M.S.L. 'Yykti-Prashnavalli' (Personality Inventory), Department of Psychology, B.H U , 1964
- Walker, Helen M. and Lev, J. *Statistical inference*. New York . Henry, Holt & Co., 1953



Motivational Profile of College Teachers

J. K. PILLAI (Smt.)

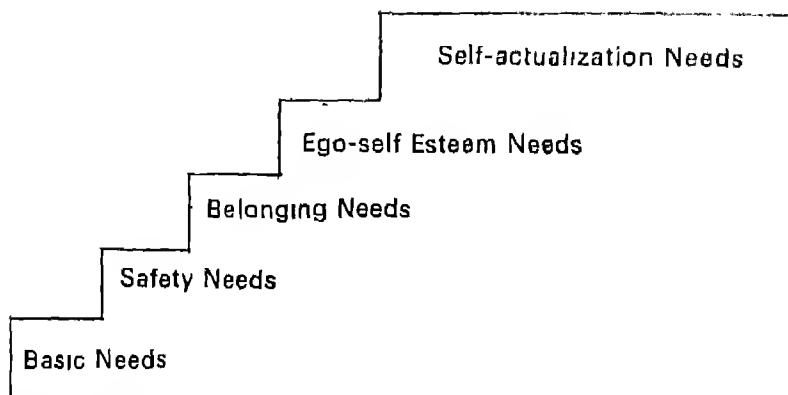
Professor of Education, Madurai Kamaraj University

THE TERM MOTIVATION, whether used by psychologists or others, generally refers to the 'why' of the behaviour. To what degree do motivational states activate or direct behaviour? Why is it some people work hard at many difficult tasks and persist in the face of difficulty while some others tend to quit in the same circumstances? Many theories have been forwarded by people who have studied motivation and the psychologists who have influenced the area of motivation most is Abraham Maslow. His approach to motivation is different from all the others, in that he studied only the highly motivated people whereas others have attempted to change the non-producers to producers. Maslow tried to find out why some people were highly motivated, happy and positive in their thinking and how they continued to maintain this state of motivation throughout day in and day out.

After 30 years of study of highly motivated people, Maslow theorizes that "Experienced needs are the primary influence of an individual's behaviour. When a particular need emerges, it determines the individual's behaviour in terms of motivation and actions taken". Hence understanding behaviour involves understanding the unsatisfied needs. Maslow has developed a model for understanding the needs by providing categories of needs in a hierarchical structure. He has placed all human needs into five needs systems, in an ascending order, from the most basic and immature to the most immature, and civilized needs. The need of hierarchy is seen as the climbing of a ladder, and the individual, only on satisfactorily fulfilling of the first primary need would move up to the next rung in the ladder.

Maslow's Hierarchy of Needs

The basic level represents needs which reflect physiological and survival goals. At this level are such factors as food, clothing, shelter, sex and other necessities. The second level consists of safety needs, i.e. tension relating to the needs of security, orderliness, protective rules, risk avoidance, etc. often satisfied by adequate salaries, insurance schemes, etc. The third level needs concern, family ties, friendship, group membership, etc., which are satisfied by the acceptance and appreciation of individual's feelings, when one feels secure in his relationship with others, one develops an ambition to excel and gain special status, fame, name, etc.



This motivates one to seek out opportunities to gain social awards. If one gains satisfaction at this fourth level, then he becomes concerned with personal growth, becomes more creative, directing himself to measure up to his own criteria of excellence. According to Maslow, the whole issue about motivation is a matter of how to help people to move up the hierarchy of needs by themselves. The first step is to find out what level of needs a person is operating on and then to keep him to fill them, level by level.

The Study

A small study was done by the Department of Education, Madurai Kamaraj University, to find out the motivational level of college teachers and to evolve a typical profile.

Sample

The sample consisted of 152 college teachers affiliated to Madurai Kamaraj University, belonging to different disciplines, of which 48 were women and 104 were men.

Tools Used

The motivational feedback opinionnaire developed by the University Associates (1973) and profile form, have been used.

Methodology

The motivational feedback opinionnaires has 20 statements for which seven possible responses, from strongly agree (+3) to strongly disagree

(-3) are given and the teachers were asked to encircle the number that corresponds to the response that fits their opinion. Each need system has been spelt out by four statements. After marking, the teachers were asked to find their total scores for each need system by adding statement scores and the total scores of each need system was recorded in the given profile form :

Need System	-12	-10	-8	-6	-4	-2	0	+2	+4	+6	+8	+10	+12
Self-actualiza- tion													
Esteem													
Belonging													
Safety													
Basic													
Low Use													High Use

Each teacher completed the chart and could read from the chart the relative strength of his/her use of each of these areas of needs motivation.

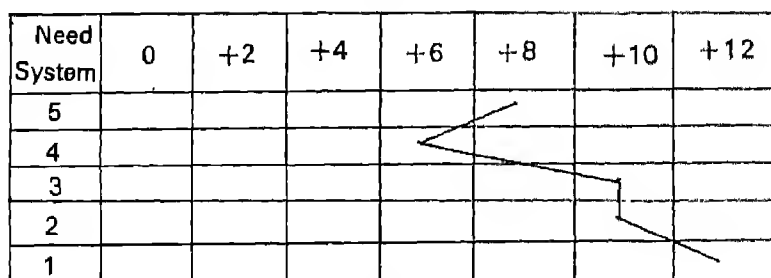
Findings

An analysis of the profile forms of the college teachers shows that :

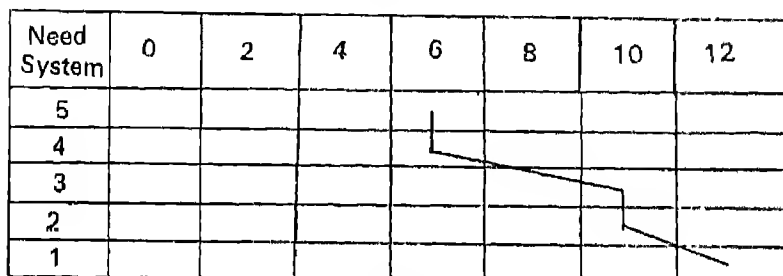
1. The college teachers seem to be quite satisfied to the first three levels, viz. (i) basic needs, (ii) security and protective rules, and (iii) friendship, group membership, etc.
2. The typical profile of men teachers is different from that of the typical profile of women teachers in that women teachers seem to be better self-actualized in teaching than men teachers.
3. The typical profiles also show all teachers have high need in the area of esteem. Fulfilment at this level depends greatly on the ability of other to respond appropriately to the efforts of the teachers. Obviously the trouble seems to be that there is lack of appreciation of the individual teacher's efforts to perform well by the superiors and/or by the students and/or by his/her colleagues.
4. Though there seems to be some lack of satisfaction at this level, women teachers seem to have moved up and have succeeded to some extent to become more actualized or self-fulfilled persons. The interpretation could be that they do get appreciation at least from a section of their clientele.

Typical Profiles

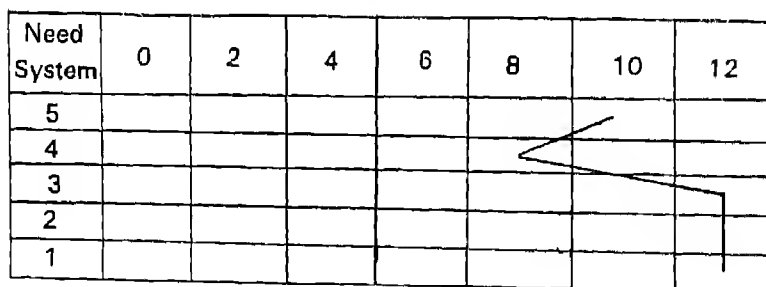
ALL



MEN



WOMEN

*Significance of the Study*

The sample of college teachers studied in this project were all teacher candidates who came to the university to do their M. Phil. They seem to be quite satisfied regarding their physical needs, security needs and belonging needs. Their perception is that there is lack of appreciation and recognition of their efforts and merits and that they do not have prestige. It is up to the administrators and heads of departments to take note of this and help the teachers move up in the need hierarchy. □

Personality Characteristics of Urban and Rural Adolescent Students

R. S. GAUR

Department of Education, Bareilly College

THE UNDERSTANDING of the adolescent students is most important for their effective education. In order to help them in their personality development, their behaviour must be understood well. Behaviour which has been called instinctive varies greatly from person to person and varies, too, within the same individual on different occasions (Garret 1968). The psycho-analytical school of Freud explained human behaviour in terms of all-pervading urges, the "Self-libido versus object-libido". Adler of the same school attributed human behaviour to excel others or escape from the inborn inferiority feelings. Objective psychologists like Kohlar has explained human behaviour in terms of disequilibrium. The brain functions as dynamic field, and its forces can be self-distributed and self-regulated, always in the direction of equilibrium (Kohlar 1960). It is, therefore, obvious that the behaviour modification is the essential task in the whole system of education. The home environment as well as the school environment affect the child's development. If these environments are conducive the child's personality develops properly.

The term personality is distinguished by two sorts of variables. One is the structural or static aspect and the other is the dynamic aspect. The static variables are introversion-extroversion as assumed to be genetically based (Eysenck 1967). Source traits of personality are considered to be relatively enduring (Cattell 1959). Individual's interaction with the environment leads to a change in static as well as in dynamic aspect of personality (Keilinger 1965). Personality, therefore, is the important phenomena to be studied.

The above discussion inspired the investigator to find out the personality characteristics of the adolescent students who are brought up in two different sets of environment, i.e. urban and rural and consequently the present study has been taken up.

The adolescence is the most critical age in the entire life-cycle. Adolescents become difficult, rebellious, dreamy, unstable and are at odds with the world (Jersild 1968).

Objectives

1. To find out the personality characteristics of the urban and rural adolescent students.

2. To make a comparative study of 14 personality characteristics (indicated by Cattell), and to find out significant differences between these two sets of adolescents.

Delimitations

1. The present study has been conducted on two different representative samples each consisting of 100 subjects.
2. The boys of Class VIII of age 13 to 15 have been taken up for the study.
3. Centrally located schools at Bareilly (urban) and the schools at Bishalpur (rural) were taken for the purpose of the present study.

Tool

A Hindi adaptation by K. K. Mehrotra of the Jr./Sr. MSPQ by Cattell has been considered the most suitable test for the present study.

Results

COMPARISON OF THE 14 PERSONALITY TRAITS OF
RURAL AND URBAN STUDENTS

Factors	Low		Sten	High		Sten
	Percentage		CR	Percentage		CR
	Rural	Urban		Rural	Urban	
A	19	16	.55	9	8	.02
B	37	37	0	0	2	1.42
C	7	14	1.61	11	8	.07
D	15	6	2.09*	13	11	.04
E	20	29	1.48	19	20	.01
F	12	18	1.16	8	7	.02
G	25	20	.08	5	1	.16
H	29	33	.06	5	1	.16
I	18	13	.09	15	10	1.07
J	8	10	.04	6	12	1.46
O	11	10	.02	7	17	2.17*
Q2	26	30	.06	9	8	.02
Q3	25	17	1.38	8	6	.05
Q4	11	7	.09	29	28	.01

N=Number on each area is 100

*Significant at .05 level

Conclusions and Interpretations

It has been observed that there is no significant difference between the rural and urban adolescent students so far as the factors (on MSPQ) A, B,

C, E, F, G, H, I, J, Q2, Q3 and Q4 are concerned. With these observations it may be inferred that on account of the democratic political set-up in India, the rural population has also been provided with most of the urban facilities, e.g. electricity, cinema, radio, and convenient communications in order to establish a constant contact with the urban life. They are enjoying all types of facilities and consequently the rural adolescents do develop the same personality traits as that of the urban adolescents.

There is a significant difference at .05 level on factors D and O. The difference on factor D is at the low whereas the difference on factor O is at the high end.

Factor D : The Factor D indicates that a greater number of rural adolescents are more placid, self-sufficient, deliberate, easily distracted from work by noise. This difference at the low end may be attributed to the environmental influences. These traits in rural adolescents might have developed on account of an environment which lacks stresses and conflicts, which are quite common in urban areas. The rural adolescents work in a calm atmosphere, therefore, they may be feeling disturbed by noise. They are deliberate and self-sufficient because of the fact that they are dependent on their agriculture work and are not at the mercy of the employer.

Factor O : The results reveal that there is a significant difference at .05 level on factor O at the high end, between the rural and urban adolescents. The greater number of urban adolescents are more apprehensive, tender, worrying, anxious, sensitive, depressive and having strong sense of duty as compared to the rural boys. These differences may also be attributed to the environmental influences. The urban adolescents are victims of lack of fulfilment of primary requirements, employment after education and future status. Therefore they are worrying, anxious and depressive. Further, the chances of earning the bread and butter are meagre, therefore, they possess strong sense of duty and perform their assignments punctually with a great sense of responsibility. But at the low end both the sets have been found equally cheerful, tough and expedient which are the common characteristics of this adolescent age-group.

The conclusions of the present study would be much helpful to guardians, teachers, guidance workers, curriculum planners, policy-framers and the others who are working for the cause of education. The student is both input and the output of the educational system (James and Samuel 1958). The personality traits have been the most influential aspect in educational success.

References

- Cattell, R.B. *The scientific analysis of personality*. Penguin, Harmondsworth, 1965
 Eysenck, H.J. *The biological basis of personality*. Charles. C. Thomas, Springfield, 1967
 Freud, S. *Contemporary schools of psychology*. Woodworth, R.W. London : Methuen & Co. Ltd., 183
 Garret, H.E. *General psychology* (2nd edition). New Delhi : Eurasia Publishing House, 215, 1968
 James, E.H. and Samuel, A.M. *The teacher and administrator's relationships in school systems*. New York : The Macmillan Co., 163, 1958
 Jersild, A.T. Conflicts between adolescents and their mothers (quoted). *The psychology of adolescence*, New York The Macmillan Co., 1968
 Kerlinger, F.N. *The foundations of behavioural research : Educational and psychological inquiry* New York Holt, Rinehart and Winston, 1965
 Kohlar *Contemporary theories and systems in psychology*. Benjamin B. Walman. New York Harper and Row, 432, 1960

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Book Reviews

Models in Comparative Research

Model Building in Comparative Education

Ingrid M. E. Munck, (IEA Monograph Studies No. 10) Almqvist and Wiksell International, Stockholm, 1979, pp. 199

THE PRESENT MONOGRAPH is the result of a doctoral study taken up by Ingrid M. E. Munck at the International Education Institute, University of Stockholm, in the area of comparative education. Data gathered in 1970 and 1971 by the International Association for the Evaluation of Educational Achievement (IEA) and the various hypotheses and models formulated for the analysis of these data were in turn subjected to another analysis. These data were collected by the IEA in a six-subject survey on the 14-year olds of England, Hungary and Sweden. Three different aspects of model building in comparative survey research in education are examined: (i) The assessment of equivalence in achievement measures over countries, (ii) the refinement of scales for cross national comparisons, and (iii) the elaboration of structural equation models. The idea was to evolve a common conceptional framework for the IEA survey. For this purpose the researcher adopted the LISREL approach to causal model building.

The IEA six-subject survey can be described as a huge 'fishing expedition' for the simple reason the determinants of scholastic achievement are not easy to identify. For this massive data no adequate theoretical framework was available to integrate opinions. Hence the need for this study.

LISREL is a statistical method for the study of measurement and path models in comparative research. This method holds one the possibility to relate the results obtained for each country in a cross-national study to a simultaneously estimated 'international' result. One could also test hypotheses concerning invariance in measures and structural relationships between countries. The present study by Munck was carried within the framework of a two-year research project called Statistical Methodological Studies on International Cross-Sectional Data (SMIDA). The research worker was conscious of the limitations of LISREL model.

The first IEA survey was an international study of achievement in mathematics in 12 countries—the overall aim being to compare outcomes

of mathematics instruction in different national systems wherein national educational policies and practices were treated as inputs, while academic achievement and attitudes towards mathematics education and school were the principal outputs. At this stage the IEA research had the assumption; what a pupil learns is determined by a variety of socio-economic, administrative, organizational and instructional factors relating to the four main domains of the conceptional scheme. The new study was not a repetition of the earlier one but had the intention to lay down a factual basis for decision making concerning school reform.

Jores Kog developed LISREL model (1973 and 1977), a computer programme that facilitates the application of LISREL to the theoretical models commonly used in educational research. It can be used for the statistical description and testing of correlation coefficients in several populations. This model imposes some restrictions on the covariance matrix for the observed variables.

In very simple terms a child's scholastic achievement is dependent on (a) non-school related characteristics like region, home background, personal characteristics and interests behaviour, (b) educational structure and operation process like school, teachers and teaching, besides opportunity to learn, i.e. time, and (c) student school-related characteristics like educational background, attitudes, interests, behaviour and aspirations. The outcomes are both cognitive and affective.

The present study found that IEA measures of general science achievement operated alike in Hungary, England and Sweden. This meant the IEA science test was valid. The home environment varieties, viz. reading resources and parental encouragement operated differently in Hungary on one hand and in England and Sweden on the other. It was also found that the home factor, which was the most powerful predictor, wielded mainly an indirect influence. The home background indicators were differently related to the home status variable in the three countries, a considerable degree of cross-country stability was found in the relationships between home status and the achievement variables after measurement errors and between school differences had been taken into account. The inference that has been drawn supports the general proposition that resources associated with the status of the family are converted into student linguistic resources which in turn influence school achievement.

Cross-national studies in Europe have their own meaning and significance but when samples are drawn from India or Chile one wonders about their utility—because they could merely furnish contrast for the simple reason the Indian student population does not show similar family motivations and their attitudes towards excellence in different school subjects

could also vary. This doubt apart cross-national studies have considerable academic value for international generalizations. Children, parents and schools universally have certain common interests, e.g. children have future in which both parents and schools could play their roles and they do—only a few of these could be negative. As a national obligation the government has the moral duty to provide schools where teachers teach and children learn. International competitions are not restricted to marketable commodities—School achievements have a latent purpose and in that lies the real significance of schooling for everyone ranging from the child to the parent and the world at large.

R. P. SINGH, Professor of Education, National Institute of Education
NCERT, New Delhi



Educational Change across Cultures

Limits to Educational Change

P. R. Dalin, The Macmillan Press Ltd., 1978, pp. x+112

THE BOOK IS WRITTEN under the auspices of the International Movement Towards Educational Change (IMTEC) to analyse the process of educational change across cultures. It is concerned with the difficulties and complexity of managing educational change.

After World War II, education was looked upon as the main instrument for individual and economic development as well as the major social force for equalization of opportunity. But it is mainly in promising equal opportunity that education has failed to come up to expectation. The vision of schools as a means to solving society's problems has been shattered. The educators who never promised the sure delivery of success were accountable at the end. This is the main theme of the book.

A number of changes which are likely to have a considerable influence on the future of education are : the sweeping changes taking place in the world, the new sense of self-responsibility in the youth, the deadening 'world economic war', changes in the world of work, the concept of learning as an enquiry-based process, etc. Under such influences, although schools are similar in many ways, the individual school is unique in its culture and no particular set of factors will apply equally well to all schools. What we

need is to have a much better understanding of the process of educational change itself before we can expect reasonable returns from our innovative programmes. The failures in the achievement of educational change programme can be traced back to inadequate understanding of schools as organizations, of the process of change and of the management of educational change. Thorough understanding and deeper inquiry are required to understand the different aspects of innovation.

The book has been divided into six chapters. The first chapter analyses the emerging problems and processes in educational change. It also presents a systematic view of educational change.

As the study of educational change involves a number of countries and cultures, the author felt it necessary to make clear the precise use of certain terminology on educational change in the second chapter. Here the author has discussed the different types of innovations and their various dimensions. The discussion of the nature of innovations leads to different barriers in the process of change. Discussing and analysing the different views on use of the term 'barrier', the author from the analysis of a number of case studies of educational change has discussed at length the four categories of barriers - (i) value barrier, (ii) power barrier, (iii) practical barrier, and (iv) psychological barrier.

The third chapter is devoted to the discussion of different forms of learning organizations, viz. mechanistic, organic and systematic. While discussing the different characteristics of the same, the author felt it necessary to discuss the individual school as an organization. The individual school is, to a large extent, a reflection of values in society. Different forces like environment, values, structure, relations and strategies are working upon the school which is taken as the unit for educational change. This is because we can begin to understand the individual school's capacity to review itself only in the light of the above-mentioned forces. A number of forces within each of the factors mentioned above are at work simultaneously, providing a cyclical rather than a linear dynamic to the change process.

Further in the chapter, the author discusses a 'good school' and a 'healthy school'. A 'good school' is more than a 'healthy school'. A 'healthy school' might live within its own norms and values. It is healthy in terms of its environment, institutional values, structure, human relations within and strategies adopted, but it is not necessarily 'good' for everyone. A 'good school' is first a 'healthy school' but it goes beyond that. A 'good school' is one that is healthy with values with which we can identify. In the end of the chapter the author concludes that it is neither possible nor desirable to construct a common organizational model for all countries, for, complex organizations in a dynamic environment have to reflect a

variety of basic issues if they are to find adequate solutions to contemporary and future problems.

The fourth chapter starts with two basic questions : (i) Are the existing theories and models of social change applicable to the study of educational change ? (ii) Can existing models of change help us in understanding critical processes in educational change and thereby assist practitioners in selecting adequate strategies ? The author presents before us different models of change as put forth by Chin and Benne, Paulston and Havelock in this chapter.

Chin and Benne have propounded rational empirical, normative re-educative, and power-coercive theories of change. Paulston extends the discussion beyond these equilibrium theories and includes the analysis of conflict theories too. The author is of the opinion that as the different theories relate to the realities of education, it is extremely difficult to assess the relative value of the theories for the reason that no one theory alone is adequate to explain the process of change in education ; different theories are not easily comparable since they relate to quite different aspects of the problem. It is, therefore, useful to take an eclectic stand.

For the practical application of the theories of change one needs to develop 'models of planned change'. The author has given four different models based mainly on Havelock's work : (i) Problem-solving model, (ii) Social interaction model, (iii) Research development and diffusion model (RI and D), and (iv) Linkage model. These models have been derived mainly from neo-evolutionary and psychological theories of change. They do not have an in-built critical awareness of ideological differences and political conflicts. This is the weakest aspect of these models in practical use in education, where one of the important considerations in change is political choice.

In order to understand the dynamics of educational change, the characteristics of the following four basic factors need to be taken into consideration :

1. The educational setting (e.g. decision-making, the climate of the school, staff incentives, etc.).
2. The environment (e.g. parental expectation, the economy, etc.)
3. The innovation (e.g. type of change, degree of complexity, etc.)
4. The change strategy (e.g. degree of participation, type of change model, etc.).

The author discusses the characteristics of each of the above-mentioned factors at length in the fifth chapter. A figure illustrating the cyclic relationships that determine the process of change is presented in this chapter. It illustrates the point that changes in one part of the system will influence

a number of other parts, which again will change the nature of the system and also the conditions under which change takes place over time. It is difficult to identify clear linear causal relationships in educational change. The processes are often cyclic, that is, several parts influence each other at the same time in a pattern that is hard to predict.

With the various critical relations existing in a system, the successful implementation of an innovation remains a ticklish problem for the practitioners and researchers.

Chapter six discusses what is meant by successful implementation and the determinants of success. The school as an organization becomes the focal point of change, as whatever change strategies we can conceive of, ultimately affect the life of students and teachers in school. The institution's creativity, its adaptation process and its compatibility with the norms and values are the important points of consideration in the successful implementation of change. The author presents three types of development strategies, viz. school development programme, networking and system support for the development of individual school.

The author, in a very concise form, has put before us the problems of systematically reaching any kind of future significantly better than the present. It is an analysis of processes and dynamics of social change in general and educational change in particular which can be of great help to the educational leaders, administrators, researchers, politicians and teachers.

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A Study of the Effect of Anxiety on Teacher Behaviour

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This is an investigation into the relationship between anxiety and teacher behaviour. The sample of the study consists of 42 men and 106 women secondary school social studies teachers of Bangalore city. The Flanders' Interaction Analysis Category System and the Sinha Anxiety Scale were used to observe teacher behaviour and measure anxiety of teachers respectively. The findings of the study are that (a) TRR and TRR 89 are related significantly to Anxiety ($N=148$), (b) TRR, TRR 89 and per cent silence are related significantly to anxiety in the case of women teachers and (c) teacher behaviour is not related to anxiety in the case of men teachers. In the main the trend of the relationship supports the hypothesis that indirect teacher behaviour is related negatively to anxiety.

A NUMBER OF STUDIES on the authoritarian personality (Adorno *et al.* 1958) in connection with accuracy of perception and judgements of others in interpersonal situations have shown that authoritarians differ from non-authoritarians in their accuracy of perception and judgement (Hart and Brown 1967, Jones 1955, Scodel and Mussen 1953). Also the work of Frenkel-Brunswick (1949) and Rokeach (1960) demonstrate a significant relationship between authoritarians and dogmatism respectively and anxiety. The non-authoritarian person is not an anxious individual as he has a basic trust in himself unlike the authoritarian individual. The above studies support the hypothesis that authoritarians behave differently from

non-authoritarians in interpersonal situations and also that authoritarians tend to be more anxious than non-authoritarians.

Teaching usually occurs in an interpersonal situation and is the interaction between teacher and students (Amidon and Hunter 1967). The process of teaching or the interaction between teacher and students presumably is affected by the personality of teachers. Studies conducted on personality and teacher behaviour have shown that the two are related to some extent (Evans 1969, Quraishi 1972, Ryans 1960, Shashikala and Tirth 1977). Anxiety is one such personality factor that may influence teacher behaviour. Bjerstedt (1967) puts forward the theory that insecure (anxious) teachers may perceive students (more often than the average teacher) as some sort of threat and react to this feeling of threat in a defensive way. The defensive behaviour might take the form of isolation and aggression. The teacher tries to maintain a distance between himself and the students, thus isolating himself and secondly, he may experience anxiety whenever students deviate from the norm and react to this anxiety by being needlessly punitive and aggressive towards the students.

Teacher classroom behaviour can be described in terms of direct and indirect behaviour (Flanders 1964) which could be interpreted in terms of authoritarian and integrative/democratic behaviour (Anderson 1939).

Based on the above discussion which reveals that authoritarianism and anxiety are related and that teacher behaviour can be studied in terms of authoritarian and democratic behaviour, it appears to the investigators that there might be a relationship between anxiety and teacher behaviour. It can be hypothesized that teachers who are high in anxiety may exhibit more direct behaviour than teachers who are low in anxiety.

Some investigators have studied the relationship between anxiety and teacher behaviour. Cole (1961), Lewis (1967) and Petrusich (1967) report a significant relationship between anxiety and teacher behaviour. Cole found that teachers who were rated anxious (on the Rorschach protocols) were rated low on performance (Ryans scale). In Lewis' study, the sample of 21 highly anxious student-teachers was drawn from a population of 295 student-teachers, after administering the Structural Objective Research Test. As rated by supervisors, the greatest weakness of the highly anxious student-teachers was the lack of effective democratic procedures in influencing desirable pupil attitudes. Petrusich using the OSCAR (Observation Schedule and Record) to measure teacher behaviour found that trait anxiety was significantly related to all the three features of OSCAR—emotional climate, verbal emphasis and social structure. State anxiety was significantly related only to emotional climate. Chabassol and Thomas (1967, 1968) found that anxiety was not related to teaching performance in the

case of women teachers while the two were related to the case of male teachers.

However, Ringness, *et al.* (1964) did not find any relationship between anxiety and teacher behaviour. Parsons (1971) and Rothwell (1971) also did not report any significant relationship between anxiety and teacher competence, although the direction of the relationship was in the hypothesized direction revealing that anxiety was negatively related to teaching competence.

Out of the seven studies described above, only three studies have tried to establish the relationship between teacher behaviour and anxiety. It seems to the investigators that this is an area which requires attention not only because of the paucity of studies but also because of the importance it has in the light of the discussion dealt with in the beginning of this article.

Objectives of the Study

1. To determine whether the anxiety of teachers is related to their classroom verbal behaviour.
2. To determine the nature of the relationship between anxiety and teacher classroom verbal behaviour in case of men and women teachers.

Sample

The sample of the study consists of 148 secondary school social studies teachers of Bangalore city. The sample was selected by using probability techniques. The initial proposed sample was 150 teachers. Out of the 172 schools in Bangalore city, 75 schools were chosen randomly. From these schools, all teachers teaching social studies to Class IX students were selected and they constitute the sample of the study. The final sample of the study consists of 148 teachers, 42 of whom are men and the remaining 106 women. Only social studies teachers were considered as it was felt that the subject taught has a bearing on the indices of teacher behaviour (Flanders 1964, p. 206). So also the standard taught. Hence both these factors were controlled by observing only social studies teachers teaching Class IX students.

Tools

The Anxiety Scale standardized by Sinha (1968) was used to measure the anxiety of the teachers. This tool was standardized on a sample of 203 students. The age range of the subjects was from 19 to 24 years. The

author reports a split-half reliability of 0.86 ($N=239$) and a test-retest reliability of 0.73 ($N=88$). This scale was validated against Taylor's Manifest Anxiety Scale ($r=.68$ with $N=70$). With other anxiety scales also, the validity coefficient was found to be fairly high (above 0.70).

Flanders' Interaction Analysis Category System (Flanders 1970) was used to observe teacher classroom verbal behaviour. It consists of ten categories, seven of which are for teacher talk, two for student talk and the remaining for interaction that cannot be understood, confusion or silence. Teacher-talk and student-talk categories can be further subdivided into response and initiation categories. The observed teacher classroom verbal behaviour can be broadly classified into direct and indirect behaviour. This category system can be used with high reliability.

Training in Observation

The first author obtained training in using FIACS by another trained observer. In addition to possessing a thorough knowledge of the category system and a detailed description of each category, the ground rules suggested by Amidon and Flanders (1967) were followed. Any interaction in the classroom that the observers felt was controversial, was discussed immediately after the observation period. The training was continued till the inter-observer reliability (Scott's reliability coefficient) obtained remained consistently above .85. The first author at a later date, trained two observers. The procedure followed was similar and it was made sure that the inter-observer reliability was maintained at .85 or above. The first author observed 90 per cent of the teachers.

Scheme of Observation

Each teacher was observed twice while teaching the same class social studies. The period of effective observation differed from teacher, but in no case was it less than an hour or greater than an hour and 20 minutes. At the beginning of the first observation teachers were administered the Sinha Anxiety Scale.

Results and Discussion

The observations of teacher classroom verbal behaviour were tabulated into the matrix form and then the indices of teacher behaviour were computed. The indices are PTT, PFT, Percent Silence, i/d, THIR, TOR, PIR, TRR 89, TOR 89, Vicious Circle, and CCR (Flanders 1970). The indices are obtained in the following way :

Percent Teacher Talk (PTT) : This index gives the extent of teacher talk and is obtained by using the formula :

$$PTT = \frac{\text{Sum of all tallies in Categories 1 to 7}}{\text{Grand total of tallies}} \times 100$$

Percent Pupil Talk (PPT) : This index gives the extent of pupil talk. The formula used is :

$$PPT = \frac{\text{Sum of tallies in Categories 8 and 9}}{\text{Grand total of tallies}} \times 100$$

Percent Silence : This index denotes the extent of silence. The formula used is :

$$PS = \frac{\text{No. of tallies in Category 10}}{\text{Grand total of tallies}} \times 100$$

i/d : The i/d ratio is the ratio of teacher's positive motivating talk to teacher's controlling behaviour and is given by the sum of tallies in categories 1, 2 and 3 divided by the sum of tallies in categories 6 and 7. The formula used is given below :

$$i/d = \frac{1+2+3}{6+7}$$

Teacher Response Ratio (TRR) : It is defined as an index which corresponds to the teacher's tendency to react to the ideas and feelings of the pupils. The index is a percentage and is given by the following formula:

$$TRR = \frac{1+2+3}{1+2+3+6+7} \times 100$$

Teacher Question Ratio (TQR) : It is an index representing the tendency of a teacher to use questions when guiding the more content-oriented part of the class discussion. TQR is again a percentage and is given by the following formula :

$$TQR = \frac{4}{4+5} \times 100$$

Pupil Initiation Ratio (PIR) : This ratio indicates to what extent pupils initiate talks in the classroom. It is given by the formula :

$$PIR = \frac{9}{8+9} \times 100$$

Instantaneous Teacher Response Ratio (TRR 89) : It is defined as the tendency of the teacher to praise or integrate pupil ideas and feelings into the class discussion at the moment the pupils stop talking. The TRR 89 can be calculated by adding the cell frequencies in rows 8 and 9, columns 1, 2 and 3, multiplying this sum by 100 and dividing the product by the total tallies in the cells of rows 8 and 9, columns 1, 2, 3, 6 and 7.

$$TRR\ 80 = \frac{(8-1)+(8-2)+(8-3)+(9-1)+(9-2)+(9-3)}{(8-1)+(8-2)+(8-3)+(8-6)+(8-7)+(9-1)+(9-2)+(9-3)+(9-6)+(9-7)} \times 100$$

Instantaneous Teacher Question Ratio (TQR 89) : It is defined as the tendency of the teacher to respond to pupil talk with question compared to his tendency to lecture. The TQR 89 is calculated by adding the frequencies in cells (8-4) and (9-4), multiplying by 100 and dividing by the total tallies in the four cells (8-4), (8-5), (9-4) and (9-5). The formula is given below :

$$TQR = \frac{(8-4)+(9-4)}{(8-4)+(8-5)+(9-4)+(9-5)} \times 100$$

Content Cross Ratio (CCR) : It is found by calculating the per cent of all tallies that are within the columns and rows of categories 4 and 5. The formula is given below :

$$CCR = \frac{4+5}{\text{Grand total of tallies}} \times 100$$

Vicious Circle . This index denotes classroom management problems. It is found by adding the frequencies in the cells—(6-6), (6-7), (7-7)—multiplying this sum by 100 and dividing by the grand total of tallies by the formula given below :

$$\text{Vicious Circle} = \frac{(6-6)+(6-7)+(7-6)+(7-7)}{\text{Grand total of tallies}} \times 100$$

Sinha Anxiety Scale protocols were scored with one score for every statement marked true. The range of scores was from 0 to 65. The mean scores of men and women teachers on the scale were not significantly different. The Pearson Product Moment Coefficient of Correlation was used to determine the relationship between anxiety and teacher behaviour. The obtained *r*'s were tested for significance by using the *F*-test suggested by Blalock (1960, p. 304).

The analysis of the data is reported in Tables 1 and 2. In Table 1, the

coefficients of correlation between anxiety and the measures of teacher behaviour are reported. In Table 2, the coefficients of correlation between the teacher behaviour measures and anxiety of men and women teachers are reported.

TABLE 1
COEFFICIENTS OF CORRELATION BETWEEN ANXIETY AND
MEASURE OF TEACHER BEHAVIOUR

N=148

TEACHER BEHAVIOUR MEASURES											
	<i>Per cent Teacher Talk</i>	<i>Per cent Pupil Talk</i>	<i>Per cent Silence</i>	<i>Id</i>	<i>TRR</i>	<i>TQR</i>	<i>PIR</i>	<i>TRR⁸⁹</i>	<i>TQR⁸⁹</i>	<i>CCR</i>	<i>VC</i>
Anxiety	-.081	+.075	+.122	-.091	-.198*	+.130	.000	.176*	+.042	+.074	.062

*Significant at the 0.05 level.

TABLE 2
COEFFICIENTS OF CORRELATION BETWEEN ANXIETY AND MEASURE
OF TEACHER BEHAVIOUR OF MEN AND WOMEN TEACHERS

Teacher Behaviour Measure	Anxiety	
	Men Teachers (42)	Women Teachers (106)
Per cent Teacher Talk	0.055	0.135
Per cent Pupil Talk	+.012	0.118
Per cent Silence	0.000	+.0242*
Id	+.010	0.131
TRR	0.052	0.21*
TQR	0.113	+.0076
PIR	0.134	+.0014
TRR ⁸⁹	0.111	0.211*
TQR ⁸⁹	+.0014	+.0050
CCR	0.051	0.120
Vicious Circle	0.076	0.052

*Significant at the 0.05 level

The main results are the following :

1. When the sex of the teacher is not taken into consideration, anxiety

is significantly (at the 0.05 level) and negatively related to two of the teacher behaviour variables—TRR and TRR 89.

2. When anxiety is related to teacher behaviour measures of men and women teachers, the direction of the relationship is the same except in the cases of i/d and PIR.
3. In the case of women teachers anxiety is related significantly (at the 0.05 level) and negatively to TRR and TRR 89 and positively to per cent silence.
4. With men teachers, anxiety is not related significantly to any of the teacher behaviour measures.

Discussion

It was hypothesized that anxious teachers will be direct and also that anxious teachers will exhibit such behaviour that is characteristic of direct teachers (that is to say, they would have low scores on per cent pupil talk, i/d, TRR, TRR 89 and PIR and high scores on per cent teacher talk, TQR, TQR 89, CCR and VC).

The results indicate that the coefficients of correlation between anxiety and teacher behaviour measures (Table 1) are in the hypothesized direction except in the cases of per cent teacher talk, per cent pupil talk and vicious circle. Anxiety is significantly and negatively related to TRR and TRR 89. Both the measures refer to the degree of positive motivation used as against the restricting and controlling behaviour of teachers. The relationship implies that the more anxious teachers use less of positive motivation than teachers who are low in anxiety. This result points to a negative relationship between anxiety and indirect measures of teacher behaviour.

It was expected that the more anxious teachers would talk more thus giving few opportunities to students to indulge either in initiation or in creating diversions. From the results, it can be seen that the relationship is negative meaning that the more anxious teachers talked less.

It was also postulated that anxious teachers, because of their restricting behaviour, might trigger off the sort of pupil behaviour which would need some curbing and controlling. Therefore, a positive relationship between vicious circle and anxiety was hypothesized. But the findings of this study belie this expectation.

An explanation for the above may be the following. It is possible that by keeping the students busy either by making them work silently or (as it was the case in most classes) by making them copy notes, the anxious teacher would be safeguarding herself as there would be limited opportunity for any kind of student participation. This explanation would account for the above seemingly unexpected findings.

This reasoning would lead us to conclude that in the classes of anxious teachers there would be a higher percentage of category 10, silence. It would mean then that there would be a positive relationship between silence and anxiety. Some support for this hypothesis is obtained when the relationship between per cent silence and anxiety is observed. It can be noticed that the relationship is positive in the case of the total sample and is also significant (at the 0.05 level) in the case of women teachers. This would mean that higher the anxiety of the teachers, more is the silence in those classes.

Even though anxious teachers ask questions more, most of the questions seem to be of the narrow variety thus resulting in a positive relationship with per cent pupil talk but understandably revealing on relationship with PIR.

When the data is analysed with an introduction of another variable, sex of the teacher, it is found that with respect to male teachers, anxiety is not related to teacher behaviour, whereas with women teachers, anxiety is significantly related to TRR and TRR 89. This result is in direct contrast to the findings of Chabassol and Thomas (1967 and 1968) who reported that anxiety bore no relationship to teaching performance of women teachers whereas negative correlations were obtained between anxiety and teaching performance of men teachers.

As far as the nature of the relationship between anxiety and teacher behaviour of men and women is concerned, the direction of the relationship is the same except in the case of $\bar{1}/d$ and PIR. However, no clear-cut trend seems to emerge when anxiety is related to teacher behaviour measures of men and women teachers separately as only 50 per cent of them are in the expected direction.

In conclusion, it can be said that the results of the study are in line with the studies of Petrusich, Lewis, Cole and Parsons in that anxiety seems to be related to teacher behaviour and it is negatively related to indirect teacher behaviour. Further, anxiety seems to affect teacher behaviour only in the case of women teachers.

References

- Andorno, T.W., Else Froenkel-Brunswick, D.J. Levinson and R. Nevitt Sanford *The authoritarian personality*. New York : John Wiley and Sons, 1958
- Amidon, E. J. and Flanders, N. A. *The role of the teacher in the classroom : A manual for understanding and improving teaching behaviour*. Minneapolis, Minnesota : Association for Productive Teaching, Inc , 1967
- Amidon, E. J. and Hunter, E. *Improving teaching : The analysis of classroom verbal instruction*. New York : Holt, Rinehart & Winston, Inc., 1967

- Anderson, H H The measurement of domination and of socially integrative behaviour in teachers' contacts with children *Child Development*, 10, 73-89, 1939
- Bjerstedt, Ake Interaction oriented approaches to the assessment of student teachers *Journal of Teacher Education*, 18, 339-357, 1967
- Blalock, Jr, H. M. *Social statistics*. New York : McGraw-Hill Book Company, 1960
- Chabassol, D J. and Thomas, D. C. Anxiety, aptitude, achievement and performance in female teachers *Alberta Journal of Educational Research*, 13:4, 291-294, 1967
- Chabassol, D. J. and Thomas, D C Anxiety, aptitude, achievement and performance in male elementary teachers *Alberta Journal of Education Research*, 14 . 4, 233-237, 1968
- Cole, D J. The prediction of teaching performance. *Journal of Educational Research*, 54 . 9, 345-347, 1961
- Evans, T. P. Teacher verbal and non-verbal behaviours and their relationship to personality *Journal of Experimental Education*, 38, 1, 1969
- Flanders, N A Some Relationships among teacher influence, pupil attitudes and achievement In *Contemporary research on teacher effectiveness* B. J. Biddle and W J. Ellena (Eds) New York : Holt, Rinehart & Winston, 1964
- Flanders, N A *Analysing teaching behaviour* Reading, Massachusetts . Addison Wesley Publishing Company, 1970
- Frenkel-Brunswick, Else Intolerance of ambiguity as an emotional and perceptual study. *Journal of Personality*, 18, 108-143, 1949
- Hart, Sr., M M. and Marjorie Brown Dogmatism as related to accuracy to student teacher's judgment of students *Journal of Teacher Education*, 18 : 4, 429-437, 1967
- Jones, E E. Authoritarianism as a determinant of first impression formation. *Journal of Personality*, 23, 107-127, 1955
- Lewis, J. W. The effect of anxiety on student teacher behaviour. *Journal of Teacher Education*, 18 : 2, 241-242, 1967
- Parsons, J. L. Anxiety and teaching competence. *Dissertation Abstracts International*, 31 8-A, 4018, 1971
- Petrusich, M M Some relationships between anxiety and classroom behaviour of student teachers *Journal of Teacher Education*, 18 . 2, 243-244, 1967
- Quraishi, Z. M Personality, attitudes and classroom behaviour of teachers Unpublished Doctoral Dissertation Baroda . M. S. University of Baroda, 1972
- Rothwell, E. A The relationship of personality traits, teacher attitude, anxiety level and academic achievement to ratings of teacher interns. *Dissertation Abstracts International*, 31 . 8-A, 4021, 1971
- Ringness, T A. et al. *Self-role conflict, personality variables and classroom interaction*. Extension Research and Services in Education, University of Wisconsin, 1964
- Rokeach, M. *The open and closed mind* New York : Basic Books, Inc., 1960
- Ryans, D. G *Characteristics of teachers : Their description, comparison and appraisal*. Washington, D C. ' American Council on Education, 1960
- Scodel, A and P. Mussen Social perceptions of authoritarians and Non-authoritarians. *Journal of Abnormal and Social Psychology*, 48, 181-184, 1953
- Shashikala, Y S. and Tirth, L V Needs and teachers behaviour. *Journal of the Institute of Educational Research*, 1 : 2, 1-8, 1977
- Sinha, D *Manual for Sinha W-A Self-Analysis Form (Anxiety Scale)*. Varanasi : Rupa Psychological Corporation, 1968

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An Investigation of the Relationship between the Affective Entry Characteristics and Comments and Letter Grades on Classroom Performance

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The present study was undertaken to evaluate the relationship between differential Comments (C) and Letter Grades (LG) on the one hand and the students' performance on the other, and also the influence of affective entry characteristics on this relationship. Ninety-one Class IX students in eight fortnightly science tests were evaluated by their science teacher with the combination of letter grades and comments. Treatment effects were judged by subsequent test performance by individual students. Results indicated that : (a) there is no significant relationship (P lies between .30 and .50) between the control and the experimental group, (b) No significant difference between the high affective entry characteristics students and the low affective entry characteristics students.

MOST PEOPLE seem to agree that school programme should be evaluated. Unfortunately the real benefits from the practice of evaluation often seem to lag far behind the potential inherent in the concept. Few evaluation studies yield information which is directly useful to busy practitioners who need relevant, applicable answers to evaluation questions. Even the educators who strongly support evaluation studies are forced to admit that only a fraction of the studies deliver information which can be used to produce significant improvements in the school programme.

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The idea of grading students against some pre-specified performance standard is not new. A 'grade' is a symbol (letter, number, word, etc.) which represents a value-judgement concerning the relative quality of students' achievement of course objectives during a specified period of instruction.

Research studies indicate that differential grading does tend to motivate students. Campbell and Stanley (1963) regard Page's study as one of the best examples of classroom research, for Page selected a representative sample of teacher and student participants and also allowed for the preservation of normal classroom procedure throughout the experimental period. The study by Page was designed to investigate the effect of teacher comments and letter grades in the natural classroom situation. He found that a brief written comment, when placed on returned objective examinations was significantly better than no comment at all in improving subsequent examination performance.

Ever since the original contribution of Page's comment effectiveness on school achievement several subsequent investigators have modelled their designs in order to test the validity of Page's findings. Investigators like Allen (1972), Hake (1973), Klinger (1971), Starkcy (1971), Mapel (1970), Moody (1970), Sweet (1966), Rhoads (1967), Shargo (1970) and Simons (1971) have not been successful in confirming with Page's results. Whereas Hammer (1972) and Lesner (1967) are among those few who have found statistically significant, main treatment effects.

Bloom (1956) has emphasized the equal importance of effective entry characteristics in learning. Learning process is much influenced by the extent to which the student is motivated. If students enter a learning task with enthusiasm and evident interest, learning should be much easier and, other things being equal, they should learn it more rapidly and to a higher level of attainment or achievement than with students who enter the learning task with lack of enthusiasm and evident disinterest. At the same time each person searches for positive recognition of his worth, and he comes to view himself as adequate in these areas where he receives assurance of his competence or success. For a student to see himself in a positive light, he must be given many opportunities to be rewarded. Public recognition of what has been learnt provides the reassurance and reinforcement to help him to put more effort to maintain the same recognition throughout his career, may be throughout his life (Blaine 1977). The present investigation assumes that positive comments and letter grades should inculcate the affective domain of the student and this in return should improve the performance of the student.

The present study while attempting to investigate Page's major finding, sought to answer some additional questions about comment effectiveness :

1. Whether there is any difference in achievement scores between High Affective Entry Characteristics (HAEC) students and Low Affective Entry Characteristics (LAEC) students ?
2. Is there any difference in achievement scores between the control and the experimental group ?
3. Whether there is any difference in achievement scores between the HAEC male students and HAEC female students ?
4. Is there any difference in the performance level between LAEC male students and the LAEC female students ?

Method

Design

The present experimentation employs pre-test, post-test design in order to evaluate the effects of C and LG and its relationship to AEC of students. The whole group was divided into two groups (experimental and control) and this in turn was divided into two each (HAEC and LAEC). Again, the two groups of experimental group was subdivided into two each (HAEC males and HAEC females), (LAEC males and LAEC females). All the 110 subjects were selected from the same school and the same class. During the experimental stage normal classroom procedures were maintained throughout to avoid the Hawthorne effect and to generalize the results.

Sample

One hundred and ten Class IX students (69 boys and 41 girls) aged between 14 to 16 years participated in the present study. The students were constituted of all the three sections of Class IX from an urban public school. The data of 10 boys and 9 girls had to be deleted while calculating the results because of their irregularity in attending the tests. Only 59 boys and 32 girls were left till the end of the study.

Procedure

Among the three sections of the class one section was kept as control and the other two sections were treated as experimental group. AECs for science was administered to all 110 students involved in this study. On the basis of the scores obtained, the each group (experimental and control) was divided into two groups, i.e. HAEC students and LAEC students. All the students were given fortnightly tests in science by the teacher and the answer sheets were also evaluated by the same teacher as per routine of the

school. This was done to avoid the experimenter's influence on the performance of the students. After the evaluation was done by the teacher, the answer sheets were taken by the investigator for assigning appropriate grades and comments to the experimental group. The control group did not receive any comments or grades. Marks obtained by the control group and the grades and comments given to the experimental group was noted down. In all eight tests were given and the teacher was given full freedom to give the test questions based on the chapter which she taught during the 15 days' interval time between the two tests and then to evaluate the answer sheets. On the basis of the marks given by the teacher, the investigator wrote comments and letter grades on the answer sheets and was handed over to the students through the teacher. The letter grades and the comments combinations given to the students were as follows :

<i>Marks</i>	<i>Grades</i>	<i>Comments</i>
60 per cent and above	A	Excellent ! Keep it up.
50 to 59 per cent	B	Good work, keep it up.
40 to 49 per cent	C	Perhaps try to do still better.
Below 40 per cent	D	Let us try to improve this.

Sufficient care was taken to see that the answer sheets reach the hands of the students at least four days before the next test. No negative comment was given in spite of the poor performance of the poor students. After the completion of all the eight tests the scores of only those students who attended all the tests were taken into consideration. Thus, out of 110 students only 91 students' scores were calculated. Other 19 students attended only four or five tests. Thus these scores were discarded during the major analysis.

The treatment effect was calculated by taking achievement difference in the first and the last test and also the successive difference between the eight tests.

Analysis of Results

Successive difference was calculated for all the eight tests in the form of $-$, 0 and $+$, $-$ indicated the decrease in performance, 0 indicated the maintenance of performance and $+$ indicated the improvement in performance. The difference between the first and the last test was also computed. But surprisingly, it was found that there was no difference between the score obtained by the first and the last test and the successive difference for eight tests. Control group scores which were in the form of marks were converted into grades for the convenience of comparing the

two group scores, i.e. experimental and control. The chi-square analysis was done to find out the relationship between the control and the experimental, and high affective and low affective groups.

Instrument

Affective entry characteristics scale for science was constructed by the investigator. The scale of 25 items was developed from a pool of 32 items tested on 110 (males and females) Class IX students in an urban school in South Delhi. The response for each item was graded on a scale ranging 0 to 4, depending on the intensity. Mean and standard deviation (Mean 71.16, SD 11.73) for the whole group was calculated. Item analysis was done, CR was calculated for all the 32 items and only those items which are significant at either .10, .05 or .01 level and above were retained in the final scale. Thus only 25 items were retained. Table 1 shows the standard

TABLE 1
CRITICAL RATIO AND SIGNIFICANCE LEVEL FOR THE ITEMS

<i>Item No</i>	σ_D	CR	<i>Significant Level</i>
1.	.509	1.257	.10*
2.	.259	1.388	.10*
3.	.277	2.165	.03
4.	.265	2.261	.03
5.	.246	1.460	.10*
6.	.249	1.601	.10
7.	.247	1.461	.10*
8.	.249	1.601	.10
9.	.337	1.127	.10*
10.	.526	1.901	.05
11.	.456	2.895	.01
12.	.546	2.346	.02
13.	.425	3.951	.01
14.	.537	2.385	.02
15.	.609	3.021	.01
16.	.532	3.532	.01
17.	.562	2.558	.02
18.	.623	3.013	.01
19.	.346	2.425	.02
20.	.282	2.971	.01
21.	.265	5.111	.05
22.	.312	1.281	.10*
23.	.314	1.397	.10*
24.	.368	2.061	.03
25.	.341	2.809	.01

* Slightly less than .10 level.

difference, CR and significance level for all the retained items. The split-half reliability of the test gave a reliability coefficient of 0.83. The reliability of the whole test by using Spearman-Brown prophecy was .91.

To find out the content validity of the scale four experts were asked to categorize the 25 items into five sub-categories of an affective entry characteristics behaviour : (a) receiving, (b) responding, (c) valuing, (d) organization, and (e) characterization by a value or value complex. Linear correlation was computed and obtained r was converted and this again was converted into r . $r = .53$ which shows a positive relationship between the judges. The scale has the face validity by the virtue of its items being chosen from the standard items compiled by Klopfer. (See Bloom, Hastings and Madans 1971).

TABLE 2
CHI-SQUARE BETWEEN THE CONTROL AND THE EXPERIMENTAL GROUP

	—	0	+	
Experimental	(17.5)	(33.7)	(7.7)	59
	15	34	10	
Control	(8.3)	(18.2)	(4.2)	32
	12	18	2	
	27	52	12	91

$\chi^2 = 3.869$ df=2, P lies between .30 and .50

Results

One of the important aspects of the present study is that the normal classroom procedure of each teacher remained intact except for the addition of the grades and the comments. Examination of Table 2 indicates that though there is no significant difference ($\chi^2 = 3.869$, P lies between .30 and .50) between the experimental and the control group, there is some amount of positive effect of comments and the letter grades on the experimental group. Careful analysis of each cell of the Table indicates that out of 59 students 34 students of the experimental group have maintained the same performance and 10 students have improved their performance, whereas 15 students of the experimental group have shown declined performance. In the control group out of 32 students, 12 individuals have shown decline, 18 individuals have maintained and only 2 individuals have shown improved performance. This answers the first question posed by the investigator.

Examination of Table 3 indicates that there is no significant difference ($\chi^2 = 3.299$, P lies between .20 and .30) exists between the HAEC and the

TABLE 3
CHI-SQUARE BETWEEN THE HIGH AFFECTIVE AND
LOW AFFECTIVE STUDENTS OF THE EXPERIMENTAL GROUP

		0	+	
HAE Group	(10.03)	(21.32)	(5.64)	
	9	25	3	37
LAE Group	(5.99)	(12.67)	(5.35)	
	7	9	9	22
	16	34	9	59

$\chi^2=3.2989$ $df=2$ P lies between .20 and .30

LAEC students of the experimental group. But the analysis of the individual cells of the Table again indicates that high affective students are certainly influenced by the comments and the LG.

TABLE 4
PERCENTAGE PERFORMANCE LEVEL OF CONTROL
AND THE EXPERIMENTAL (HA AND LA) GROUP

Performance Level	Control	Experimental		
		Total	HAEG	LAEG
-	38	25	24	32
0	56	58	68	41
+	6	17	8	27

The scores of both experimental and control as well as HAEG and LAEG groups were converted into percentage scores to clarify and expand the meaning of the difference obtained in the above two chi-square tests. Table 4 indicates that 38 per cent of the control and 25 per cent of the experimental group shows the declined performance. Again, 6 per cent of the control group and 17 per cent of the experimental group have shown the improvement in performance. These two scores clearly indicate that comments and LGs have positive effect on the experimental group. Fifty-six per cent of the control group and 58 per cent of the experimental group have maintained their performance. This indicates that there could have been significant difference between the experimental and the control group, if the maximum was not limited to 'A' grade only. Because the students who scored 'A' in the first test would get only 'A' in spite of their improvement in the performance. Whereas if a student has scored 'B' or 'C' grade

in the first test can certainly show the improvement by getting 'A' or 'B' grades. Thus we find 56 per cent and 58 per cent of the control and the experimental groups have maintained the performance throughout. And most of the students who belong to this group have scored 'A' (maximum possible) grade in the first test itself.

Coming to the high and low affective groups 24 per cent of the HA and 32 per cent of the LA groups show declined performance. The decline is more conspicuous in the low affective group whereas 68 per cent of the high affective and 41 per cent of the low affective have maintained the same performance. Here again the high affective performance is conspicuous. As far as the improved performance is concerned 27 per cent of the LA group and only 8 per cent of the HA group have shown improvement. The chi-square between the HA and LA students of the experimental group is 3.299, P lies between .20 and .30. Whereas the correlation between the HA and LA groups of the control group is .36 which indicated positive correlation. This answers the second question posed by the investigator.

There is no significant sex difference between the high and the low affective groups. But we can see too much of fluctuated performance by male students whereas it is not the case with the female students. This answers the third and fourth questions posed by the investigator.

Discussion

The results of this study become more meaningful when compared with the findings of the previous studies in the field. Page (1958) found a significant difference between his 'no comment' and 'specified comment' group ($P < .05$). The chi-square test indicated that no significant difference existed in the present study between the experimental and the control group and also between the HAEC and LAEC groups. One possible explanation for this difference in findings may be due to the size of the sample. Page's sample contained 74 teachers and 2,139 students, while the present study involves only one teacher and 91 students. Page's report itself indicates no significant main effect when the sample size was reduced to 36 from 74 classroom in order to test any interaction between the school and the comment effectiveness. But Mapel (1970), in spite of his big sample size ($N=2,640$), could not find the significant comment effectiveness. The reason might be that his study involved college students as sample, and the comments used were perhaps less personalized. Thus the comments were not enough motivating to the college students who have had many years of exposure to different types of comments.

Another possibility for not obtaining significant difference might be due to the fact that the comments were given by the investigator rather than by

the teacher. Rapport built during the school days between the students and the teachers bound to have some affective feeling towards a teacher by the students. Therefore, the response would have been certainly different for what it is now (perhaps on more positive side as the existing trend indicates), had the comments were given by their own teacher. But this again would depend on the type of relationship the students and the teacher have maintained.

Another important factor to be noticed in the present study which again might have been one of the causes for not getting the significant results might be that the maximum grade kept in the study was 'A'. So even if a student scored much higher in the second test than the first test, if the student has scored 'A' in the first test, he will get the same grade in spite of his improved performance. Thus improvement cannot be shown. Whereas those who have scored 'C' and 'B' in the first test can show their improvement by getting 'B' and 'A'. Observation of data indicates that most of the high affective students started with an 'A' grade.

The only other replication study which found statistically significant comment effects was the Lesner (1967) study. Lesner's sample consisted of 965 Class IV and VI students. Though the N is half of the Page's study the reason for getting this significant effect might be that the subjects involved were much younger (8 to 11 years) than the subjects of the Page's study (14 to 16 years). Younger children are more responsive than the older ones to the approval and disapproval of their behaviour by the teachers and parents shown in the form of comments and grades.

The present study was designed also to determine the relationship of affective entry characteristics and the comments and grades with the performance. Though the obtained result is not significant at either .05 level or .01 level it is certainly showing a positive trend. As we know that affective domain includes attitudes, interests, perception, self-esteem, etc. comments given by the teacher would certainly have greater meaning to the students who have high affective entry characteristics against those who have low affective entry characteristics. One possible explanation for not getting significant difference might be that the comments were not given by the teacher and for the students, comments and grades given by the teacher are much more meaningful than the same comments and grades given by third person (in this case investigator).

References

- Allen, M. L. An investigation of the relationship between written comments on classroom tests and achievement in and attitudes towards college mathematics.

- Doctoral dissertation, University of Virginia. *Dissertation Abstracts International*, 33, 1013A (University Microfilms No. 72, 73, 408), 1972
- Benjamin, S. Bloom. *Human characteristics and school learning*. New York : McGraw Hill Book Company, 1976
- Benjamin, S. Bloom and others. *Handbook on formative and summative evaluation of student learning*. New York : McGraw Hill Book Company, 1971
- Benjamin, S. Bloom and others. *Taxonomy of education objectives, Book II. Affective domain*. London: Longmans, copyright by David McKay Company, Inc., 1964
- Blaine, R. Worthen. Characteristics of good evaluation studies. *Journal of Research and Development in Education*, 10, (N.O.S.) 3-20, 1977
- Campbell, D. T. and Stanley, J. C. *Experimental and quasi-experimental designs for research*. Chicago. Rand McNally, 1963
- Garrett, Henry E. *Statistics in psychology and education*. New York : Longmans Green, 1958
- Hake, C. The effects of specified written comments on achievement in and attitude towards algebra and geometry. Doctoral dissertation, Pennsylvania State University. *Dissertation Abstracts International*, 34, 1700A (University Microfilms No. 73-24, 008), 1973
- Hammer, B. Grade expectations, differential teacher comments, and student performance. *Journal of Educational Psychology*, 63, 454-458, 1972
- Klinger, R. L. The effects of written positive statements on academic performance of fifth grade students. Doctoral dissertation, University of Texas, Austin. *Dissertation Abstracts International*, 32, 6206A (University Microfilms, No. 72-15,786, 1971
- Lesner, J. The effect of pupil-corrected tests and written teacher comments on learning to spell in the upper elementary grades. Doctoral dissertation, University of California, Los Angeles. *Dissertation Abstracts International*, 28, 542A (University Microfilms No. 67-07, 653), 1976
- Mapel, S. B. Jr. The influence of the instructor's written comments upon student test performance in the college classroom. Doctoral dissertation, North Texas State University. *Dissertation Abstracts International*, 32, 247A (University Microfilms No. 71-18, 660), 1970
- Moody, F. E. The differential effects of teacher comments on college females' achievement as measured by test performance. Doctoral dissertation, University of Rochester. *Dissertation Abstracts International*, 30, 3328A (University Microfilms No. 70-02, 939), 1970
- Page, E. B. The effects upon student achievement of written teacher comments accompanying letter grades. Unpublished doctoral dissertation, University of California, Los Angeles, 1958(a)
- Page, E. B. Teacher comments and student performance : A seventy-four classroom experiment in school motivation. *Journal of Educational psychology*, 49, 173-181, 1958(b)
- Rhoads, P. A. Relationship between teacher comments and the performance of slow learners. Doctoral dissertation, University of Maryland. *Dissertation Abstracts International*, 28, 2498A (University Microfilms No. 68-00, 533) 1968
- Steward, L. G. The differential effects of letter grades and written teacher comments on student objective test performance. Doctoral dissertation, Teacher's College,

- Columbia University. *Dissertation Abstracts International*, 35, 6520A--6521A (University Microfilms No. 75-07, 537), 1975
- Steward, L. G. Teacher comments, letter grades, and student performance : What do we really know ? *Journal of Educational Psychology*, 68, 4, 488-500, 1976
- Shrago, M. J. The effects of approving teacher comments on pupil achievement and attitude. Doctoral dissertation, University of Kansas. *Dissertation Abstracts International*, 30, 5302A (University Microfilms No. 70-11, 072), 1970
- Simons, R. H. The effect of written differential incentives on academic performance at the upper elementary level. Doctoral dissertation, University of Miami. *Dissertation Abstracts International*, 32, 6227A (University Microfilms No. 72-12, 894), 1971
- Starkey, K.T. The effect of teacher comments on attitude toward and achievement in secondary mathematics classes : An experimental study. Doctoral dissertation, Pennsylvania State University. *Dissertation Abstracts International*, 32 (1-A), 259-260, (University Microfilms No. 71-17,677), 1971
- Sweet, R. C. Educational attainment and attitude toward school as a function of feedback in the form of teachers' written comments. Madison University of Wisconsin, 1966. (ERIC Document Reproduction Service No. ED, 015163), 1966
- Siegel, S. *Non-parametric statistics for the behavioural sciences*. New York : McGraw Hill Book Company, Inc., 1956

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Effects of Simulated Information on Assessment of Cognitive Competence

A Test of Expectancy Hypothesis

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The authors in this study have investigated the effects of simulated information on evaluation of pupils' classroom performance in arithmetic, social studies and English under two expectancy conditions (positive and negative), two question types (objective and essay) and two systems of evaluation (marks and grades). Identical answer scripts were given to each of the 120 teachers along with a confidential report containing multiple cues for inducing expectancy which was read before evaluation of scripts. Equal number of teachers were randomly assigned to the positive and negative expectancy conditions. The findings revealed significant main effects for expectancy, question type and curriculum areas. Evaluation scores were high for positive expectancy, objective questions and arithmetic compared to the scores obtained for negative expectancy, essay questions, social studies and English. Overall rating of performance revealed a strong expectancy effect. Effectiveness of simulated information containing multiple cues for inducing expectancy and its consequent effect on evaluation of pupil performance received strong experimental support.

ROSENTHAL AND JACOBSON'S *Pygmalion in the Classroom* appeared in 1968 with its interesting 'Oak' school findings on the importance of experimenter effects on behavioural research. This was very rapidly followed by a series of expectancy studies on both human and animal behaviour. However, as Snow (1969) put it, "the study suffers from serious measurement problems and inadequate data analysis". Following Snow's criticism,

experimental validation of the concept has been tried out by several researchers (Barker and Crist 1971, Claiborn 1969, Jones 1977, and Persell, 1977, Rosenthal 1971, 1977, Thorndike 1968, and Wesler and Strauss 1968).

The faculty of a school may establish a particular climate of expectations. In *Crisis in the Classroom*, Silberman (1970) identified three elementary schools in New York city that succeeded in teaching low income group minority children to read at or above grade level. "Students could learn"—a high expectation could be set up. Silberman (1970) indicates, "the schools are run according to the expectation of success and accountability for failure are built into the structure, despite their wide differences in administrative style and approach" (p. 106). Robinson (1973) observed that teachers made a larger proportion (44 per cent) of cognitive demands upon perceived high achievers than upon perceived low achievers (24 per cent).

Research investigators (Beez 1968, Brophy and Good 1970, Cornbleth, Davis and Button 1974, Jeter 1974, Panda and Guskin 1976, Silberman 1970) have demonstrated that expectations are related to teacher behaviours and to students' cognitive changes even when pupil IQ and achievements were controlled. Cognitive performances of lower class and minority group children are negatively influenced by teacher expectations (Anderson 1971, Dusek and O'Connell 1973, Sever 1973, Sutherland and Goldsmid 1974).

Commenting upon the 'self-fulfilling prophecy' in ghetto education, Rist (1970) reported the results of an observational study of one class of ghetto children during their kindergarten, first and second-grade years. He showed how the kindergarten teacher placed the children in reading groups which reflected the social class composition of the class and how these groups persisted throughout the first several years of elementary school. The way in which the teacher behaved toward the different groups became an important influence on the children's achievement. Rist examined the relationship between the 'caste' system of the classroom and the 'class' system of the larger society. Social class was a salient factor in the formulations of teacher expectations of pupil performance.

Expectancy induced through labelling, behavioural cues or observation create stigma (Goffman 1963) under conditions of negative information and boosting up in the positive state. Guskin and Guskin (1970) stated, "Labels and stereotypes can have an important impact on perception when more reliable information is absent but found to have little significance when more directly observable and relevant cues are present" (p. 30).

Pugh (1974) found that both male and female teachers judged the aca-

demic ability and school achievement of White students more favourably than those of Black students even though students were matched on SES background. Social class cues were transmitted visually and vocally in another investigation reported by Jensen and Rosenfeld (1974). In this study teachers evaluated students on a set of 15 semantic differential scales dealing with the teacher's classroom evaluation criteria. Anglos were rated most favourably, middle class Anglos and Blacks were rated more favourably than lower class Anglos and Blacks in all the 15 scales. The possible effect of social class stereotyping was explained in terms of social dominance theory and own group membership (Jaeger and Freijo 1975).

Expectancies have been induced in various ways. For example, Miller *et al* (1968) provided case histories containing cues concerning lower class origins and Harvey and Slaton (1975) presented teachers with photographs of students and asked the teachers to rank the social class of children. Physical appearance (Clifford and Walst 1973) also provides a basis for development of stigma and expectancy, although in most cases teacher expectancies are shaped by the societal structure of dominance. From these findings it appears that in most cases expectancy works, i.e. the way teachers feel about pupils, the same way their behaviour and pupil performance are affected. Although the genesis of the expectancy phenomenon is gradually becoming clear but how does the concept of expectancy work as a mediating link and its generalizability across situations and types of performance assessment is not quite clear.

Rosenthal (1974) emphasized the concept of expectancy as a crucial mediating link and stated that under condition of positive expectancy teachers show greater warmth to children, praise them more often, place more of cognitive demands on them and teach them more contents.

A striking omission in the literature of expectancy research is the application of expectancy hypotheses to evaluation of cognitive performance by real teachers. Further, conditions under which such expectancies would work has also not been determined, i.e. the type of cues, the curriculum area, the mode of evaluation, and nature of questions. Does objective question reduce the expectancy effect during evaluation? To what extent expectancy statement consisting of class-caste cues, ability cues, and behavioural cues induce expectancy effect among teachers and consequently influence their evaluation of actual cognitive performance? To what extent gradings are influenced by expectancy? These aspects of the problem provided the rationale for undertaking the present investigation

Purpose

The purposes of the investigation were :

1. To investigate the effects of expectancy information on evaluation of pupil performance in arithmetic, social studies and English.
2. To investigate the relative sensitivity of the objective system of examination and essay type examination to the expectancy information.
3. To study the interactive effects between expectancy, question type and curriculum areas in relation to evaluation.
4. To observe the teacher expectancy effects on an overall rating of scholastic competence.

Problems 1, 2, 3 will be investigated separately for numerical marks and letter grades.

Method

Design and Sample

One hundred and twenty secondary school male teachers attending summer-school-cum-correspondence course in the Regional College of Education, Bhubaneswar, served as subjects. Half of the subjects were assigned randomly to the positive expectancy group and other half were assigned to the negative expectancy group. All these teachers had experience in testing mathematics, social studies and English in Class VI. All the three curriculum areas were included as subjectivity in marking can be easily located

Test Materials

Test materials consisted of answers of a Class VI student in school final examination picked at random from a randomly selected school located in Bhubaneswar. One essay type answer and one set of objective question-answer from each of the arithmetic, social studies and English examinations were selected from the answer book. These answers were electronically duplicated to maintain the actual handwriting, scriblings, etc. The marks awarded by the teachers, however, were erased before duplication.

Each essay type answer carried 10 points and each set of objective questions carried 10 points. A proforma was prepared where the teacher has to enter the mark and grade in separate columns for each of the three subject areas. For recording overall impression about the pupil's performance, a five-point rating scale was given.

Expectancy Information

Considering the various relevant cues to induce expectancy two protocols were prepared for producing positive and negative expectancy effects. The positive protocol stated :

In our opinion the above student reflects very great promise for future academic success. His intelligence score is in the very superior category. Since he comes from a very highly educated family whose father is an IAS, his general behaviour with teachers and students as measured by an 'adaptive behaviour test' indicated extremely social and pleasing manners. His mother is also a postgraduate in psychology and she really knows how to bring her three children in a better way. Biswajit being the eldest has always been the family pet for his good school work. He is well dressed. During play he appears to be quite smart and does not use filthy languages. He always tries to keep the prestige of his family. He is less anxious, quite stable, reflective and regularly does his school work as observed from his performance, homeworks and other observations. He has a strong desire to do better and better and in almost all occasions he does achieve his goals. He is really a promising student for the school.

The negative protocol contained the comment :

In our opinion Dukhisyam is not a good student. Because his mother works in the Stewart School as a lady sweeper, he could get admission on compassionate ground. His intelligence score is too low than what is expected according to his age. He is quite aged for the class, in which he is reading but since he comes from a sweeper's family he does not get enough to eat for maintaining a sound health. Most of the time he has to assist his parents in their work and seldom he gets time to do his home-work. He sits in the back bench. He is poorly dressed. In play he is most arrogant and irrational. He has a strong sense of inferiority. He is anxious, emotionally tensed and suspicious of others. He remains absent from the school on most of the days and lacks self-motivation. He needs a lot of remedial teaching and care as well as physical treatment just to improve himself in the class and in his dealings with others. On the whole he is a below-average child in everything and he cannot progress in future.

Procedure

Testing was arranged in a large auditorium. Seats were arranged in

such a manner to preclude any interaction between the teachers during the testing. Each teacher was supplied a closed envelope containing the protocol marked 'confidential' on the top, a set of answers and an instruction sheet containing record blanks for writing marks and grades. Positive reports were given to 60 teachers. The rest were supplied the negative reports. Reports were fictitious but were written as if these are normal and based on facts. After every teacher read the report, they were asked to put it back in the envelope as it is confidential and were requested to read silently the instruction, which is given below, and work through :

Enclosed here are a few answers of a student about whom you have just read an introductory letter. This letter was received by the school authorities after a careful study was made about the child by a group of psychologists and guidance workers. Their opinions were based on objective test scores. Keeping this in mind we request you to tell us your personal remarks about this child. To help you in arriving at this judgement we are enclosing a few answers of the child in response to certain questions which are written at the top of each answer. Each essay type of question carries 10 marks, and each objective question carries 2 marks. Please read his answer and whatever marks you think the student deserves to get, award him that mark in the proforma given. After evaluating all his answers give a numerical mark. Also give him a grade in terms of the seven-point scale.

Results and Discussion

The means and SDs of marks for answer type, expectancy conditions and subject areas are presented in Table 1

TABLE 1
MEANS AND SDs OF MARKS FOR ANSWER TYPE, EXPECTANCY
CONDITIONS AND CURRICULUM AREAS

Expectancy conditions	Measures	ARITHMETIC		ENGLISH		SOCIAL STUDIES	
		Essay type	Objective type	Essay type	Objective type	Essay type	Objective type
Positive	M	7.32	7.27	6.17	7.35	6.38	6.62
	SD	3.08	2.62	1.41	1.02	1.36	3.85
Negative	M	5.38	6.62	4.87	6.30	4.92	5.72
	SD	3.96	2.00	1.64	1.89	1.58	1.63

N=60 in each group, Maximum marks=10

To test the significance of difference between the expectancy conditions, types of questions, and the curriculum areas with regard to their main and interactive effects, analysis of variance using 2 (expectancy) $\times 2$ (question type) $\times 3$ (curriculum areas) was computed with the last two factors as repeated measures. The expectancy variable was the only independent variable to which teachers were randomly assigned.

TABLE 2
SUMMARY OF 2 (EXPECTANCY) $\times 2$ (QUESTION TYPE) \times
 3 (CURRICULUM AREAS) ANALYSIS OF VARIANCE

<i>Sources of Variation</i>	<i>Ss</i>	<i>df</i>	<i>MS</i>	<i>E</i>	<i>P</i>
<i>Between subjects</i>	1161.12	119			
Expectancy (E)	266.55	1	266.55	35.16	.01
Error (b)	894.57	118	7.58		
<i>Within subjects</i>	3385.83	600			
Type of Question (Q)	116.81	1	116.81	11.55	.01
Curriculum area (C)	67.08	2	33.54	6.47	.01
E \times Q	21.95	1	21.95	2.17	n.s
E \times C	0.40	2	0.20	0.04	—
Q \times C	21.91	2	11.46	2.68	.05
E \times Q \times C	8.52	2	4.26	1.37	n.s
Error 1 (Q)	1193.07	118	10.11		
Error 2 (C)	1221.85	236	5.18		
Error 3 (Q)	733.24	236	3.11		
Total	4546.95	719			

From Table 2 it appears that the main effect for expectancy conditions is significant ($F=35.16$, $df=1,118$, $P<.01$). The teachers who received positive simulated information about the child's performance evaluated the answers with that expectation and awarded higher marks ($M=6.852$) compared to the mean evaluation scores of the negative expectancy group ($M=5.635$). The maximum marks was 10 and the scripts were identical in all respects. Further, observation of the mean scores under positive expectancy conditions revealed that the scores in all the cells are higher in magnitude than those of the negative expectancy condition.

The next problem of the study was to observe if type of questions make significant difference in evaluation. The overall mean scores for objective/essay questions are 6.621 and 5.840, respectively. The F -ratio 11.55 ($df=1,118$) is significant at .01 level. Evidences are conclusive of the fact

that in objective question-answers the mean scores are significantly higher than those of the essay type answers. This fact has been further established by an ordinal interaction effect between question type \times curriculum areas ($F=3.68$, $df=1, 236$, $P<.05$). Under objective questions the mean scores were : 6.955, 6.160, 6.825, respectively for arithmetic, social studies and English. The corresponding mean scores for the essay type answers were : 6.350, 5.650 and 5.520.

The third purpose of the study was to ascertain the differences in evaluation of answer papers in three different curriculum areas, arithmetic, social studies and English. The rationale underlying such an assumption is the degree of subjectivity in evaluation of different curricula. The results revealed that the mean scores are 6.648, 5.655, and 6.172 respectively for arithmetic, social studies and English. The main effect for evaluation in curricular area is significant at .01 level of confidence ($F=6.47$, $df=2,236$). Specific comparisons were made to locate the significance of difference between any two curricular areas. The t-ratios were all significant. Excepting the question type \times curriculum area interaction, no other interaction effect was significant. Discrepancy of marks in English was greater between objective and essay questions than the other two subjects.

One of the major purpose of the study was to investigate the sensitivity of the grading system to expectancy information, in the question type and curriculum area. The means and sds of grades are presented separately in Table 3

TABLE 3
MEANS AND SDs OF GRADES GIVEN UNDER DIFFERENT
EXPECTANCY CONDITION FOR DIFFERENT SUBJECTS

Condition of expectancy	Measures	ARITHMETIC		SOCIAL STUDIES		ENGLISH	
		Essay type	Objective type	Essay type	Objective type	Essay type	Objective type
Positive	M	5.63	5.90	5.27	6.02	5.50	5.53
	SD	2.04	1.10	1.29	0.82	1.27	1.30
Negative	M	4.22	4.92	3.77	4.78	4.06	4.48
	SD	2.49	1.55	1.75	1.46	1.72	1.49

N=60 in each cell, Maximum score=7

Although a clear trend is observed from the means and sds regarding the main effects to justify the statistical validity of the generalization, a 2 (ex-

pectancy) \times 2 (question type) \times 3 (curriculum) analysis of variance similar to the earlier one was computed. The summary of the ANOVA is presented in Table 4.

TABLE 4

SUMMARY OF 2 (EXPECTANCY) \times 2 (QUESTION TYPE) \times
3 (CURRICULUM AREA) ANALYSIS OF VARIANCE

Source	<i>Ss</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
<i>Between subjects</i>	1242.47	119	10.44		
Groups (E)	290.07	1	290.07	35.94	<.01
Error (b)	952.40	118	8.07	—	—
<i>Within subjects</i>	926.50	600	1.54	—	—
Question (Q)	50.67	1	50.67	24.36	<.01
Curriculum (C)	9.66	2	4.83	5.03	.01
Q \times E	5.94	1	5.94	2.86	—
C \times E	0.90	2	0.45	0.47	—
Q \times C \times E	13.20	2	6.60	4.15	.05
Q \times C \times E	0.15	2	0.075	0.05	—
Error 1(Q)	244.89	118	2.08		
Error 2(C)	225.44	236	0.96		
Error 3(Q \times C \times E)	375.65	236	1.59		
Total	2168.97	719			

Mean grades received were $M_a = 5.162$, $M_s = 4.960$, and $M_e = 4.915$ respectively for arithmetic, social studies and English. The results of test revealed 't' for ($M_a - M_s$) 12.625, 't' for ($M_a - M_e$) = 15.437, 't' for ($M_s - M_e$) = 2.812

The main effect for expectancy is significant ($F = 35.94$, $df = 1, 118$, $P < .01$). Grades received under positive expectancy were higher ($M = 5.642$) than the grades received under negative expectancy condition ($M = 4.372$). Grades for essay type answers in general was lower ($M = 4.741$) than that for the objective answers ($M = 5.283$). The grades were comparatively higher in arithmetic, than that of social studies which is higher than that of English. The interaction effect between question type and curri-

culum areas was significant at .05 level ($F=4.15$, $df=2,236$). The interaction is ordinal. In case of all the curriculum areas the mean grades in respect of the objective questions were higher than those of essay questions and the discrepancy is greater in case of social studies and next in arithmetic. None of the remaining interactions was significant.

Table 5 presents the teacher's overall impression of the pupil's performance on a five-point scale as a function of expectancy condition. The weightage in the rating scale were: 5=superior, 4=above average, 3=average, 2= below average, 1=dull.

TABLE 5
SIGNIFICANCE OF DIFFERENCE IN OVERALL RATING
AS FUNCTION OF EXPECTANCY

<i>Expectancy</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>	<i>P</i>
Positive	60	4.02	0.76	6.510	.001
Negative	60	3.02	0.76		

The result is quite interesting. The mean rating under positive expectancy (4.02) is significantly different from the mean rating (3.02) obtained under negative expectancy conditions. Similar is the finding in most expectancy research using simple rating scale without reference to performance.

Expectancy Effect

The expectancy hypotheses received glaring support in the present study. The teachers who received positive cues concerning superior performance of the pupil invariably assessed the performance favourably as reflected by higher numerical marks, higher grades in each curriculum area and higher ratings of overall performance, compared to the evaluation indexes of pupil performance reported by the teachers who were given negative cues. The evaluation indexes that differentiated significantly the effects of expectancy did include three curriculum areas and each area consisted of essay and objective question answers which was common to all evaluators. It has been already pointed out that the mediating processes between teachers and pupils in expectancy studies have been mainly the teacher's behaviour, whether cognitive or affective. No differential experimental cues were available since the answers were electronically duplicated to preserve the handwriting, corrections, etc.

Hence, the findings proved that a simulated report that contains cues relating to social class membership, mental ability, physical and health status, classroom behaviour and achievement, economic status and size of family, educational and professional background of parents of those pupils, peer-group relations and other relevant cues becomes successful in building expectancies positive or negative depending on the nature of information provided and such induced expectancy are reflected in their evaluations of pupil performance. These findings are consistent with psychological experiments on the influence of mental set in perceptual judgement, learning, etc. Hence, simulated information build positive or negative expectancy or mental set that works as a predisposing factor for differential evaluation of identical cognitive performance irrespective of the fact that there is variation in curriculum areas or question types. Hence, it would be more appropriate to say that expectancy effects are generalizable across question types, and curriculum areas and types of evaluation. Although the grading system is believed to reduce much of the error variance and subjectivity in evaluation yet it was influenced by expectancy effects. Question type curriculum areas expectancy interaction is no significant.

The general conclusion is quite apparent i.e. the way teachers felt, the same way they evaluated pupil performances. This extends the expectancy interpretation to interpretive or evaluative behaviour of teachers concerning pupil performance. This further substantiated the fact that if in the past, expectancy effect has not been established (Claiborn 1968) then it is not the ineffectiveness of expectancy phenomena but the limitations of the procedures used for inducing expectancy. Since expectancy is a condition, it would be wiser step to bring in all the relevant cues in a comprehensive fashion to create the desired set. Pygmalion effect seems to have experimental validity in spite of its earlier limitations. The unfinished pygmalion has been revisited and revisited well. It has discovered a new area for its travel. But it all depends whether Professor Higgins will perceive his lady stenographer as a 'lady' or a 'flower girl' and under what conditions she would really look different. Teachers do perceive children differently and teacher perception of children under different conditions has been reported in an earlier investigation (Panda and Bartel 1970). The socially dominant is the one who created a favourable disposition in the minds of the teacher or evaluator.

Question Type

In recent years there is greater emphasis to assess pupil's learning outcomes through objective questions those are precise and reliable from the

point of view of scoring and comprehensive in view of the course coverage as compared to essay type questions. Relative merits of these two procedures would vary for different curriculum subjects depending upon how much variability can be expected in pupils' answers. The findings of the present study are significant in two ways : (a) Irrespective of the fact that whether it is the grading or numerical system valuations of answer of objective questions have been at a significantly higher level than that of the essay questions. This may be due to specificity of answers and attention of the teachers to details in objective question answers. (b) Interaction between question type and curriculum areas are ordinal both in the numerical marking system and grading system. In all cases mean evaluation scores were higher for objective answer than those of the essay type. But the discrepancy is greater for social studies under grading and for English under numerical marks. Interaction between question type \times expectancy is not significant. This fact is noted here without further interpretation.

Grading and Numerical Marks

Inadequacy of numerical marks for use in evaluation of student performance has been discussed widely and the recent interest is for the use of grades. While numerical marks are spread over a wide range which adds to their unreliability, grades are not.

Overall Performance

Previous research in the field did not specify the curricular dimension while observing the effects of expectancy or self-fulfilling prophecy. Mostly the cognitive measures, i.e. IQ, rate of presentation and amount of materials, during learning, recall, and recognition scores, etc. were used in previous studies. In the present study an attempt was made to evaluate performance in three curriculum areas and obtain an overall rating of performance. Irrespective of the fact whether variability is more or less in a given subject, in all the three areas, evaluation scores were higher under the positive expectancy condition compared to those of the negative expectancy condition. The effects are consistent even when its interaction with question types become significant i.e. in case of essay questions, scores were lower than those under the objective questions in all three areas of curriculum.

In conclusion, it can be stated that self-fulfilling prophecies are a reality and simulated informations based on comprehensive social, mental and personal cues create such expectancies which vitally affects teacher assessment of pupils' classroom performance.

References

- Anderson, P. S. Teacher expectation and pupil self-conceptions. *Dissertation Abstracts*, 32, 1619 A, 1971
- Baker, J. P. and Crist, J. L. Teacher expectancies . A review of the literature. In J. D. Elashoff and R. E. Snow (Eds.) *Pygmalion reconsidered*, Washington, Ohio . Charles, A. Jones, 48-64, 1971
- Beez, V. Influence of biased psychological report on teacher behaviour and pupil performance. Paper presented in American Psychological Association, 76th Convention, 1968
- Brophy, J. E. and Good, T. L. *Teacher-student relationship : Causes and consequences*. New York Holt, Rinehart & Winston, 1970
- Cifford, M. and Walster, E. The effect of physical attractiveness on teacher expectation. *Sociology of Education*, 45, 248-258, 1973
- Claiborn, L. W. Expectancy effects in the classroom : A failure to replicate. *Journal of Educational Psychology*, 60, 333-343, 1969
- Cornbleth, C., Davis, O. L. and Button, C. Expectation for pupils achievement and teacher-pupil interaction. *Social Education*, 38, 54-58, 1974
- Dusek, J. B. and O' Connell, E. J. Teacher expectancy effects on the achievement test performance of elementary school children. *Journal of Educational Psychology*, 65, 371-377, 1973
- Fleming, E. S. and Anthoner, R. G. Teacher expectancy or my fair lady. *American Educational Research Journal*, 8, 241-252, 1971
- Goffman, E. *Stigma*. New York : Prentice Hall, Inc , 1963
- Guskin, A. E. and Guskin, S. L. *A social psychology of education*. Reading, Mass: Addison-Wesley, 1970
- Harvey, D. G. and Slaton, G. T. The relationship between child's SES and teacher expectations : A test of middle class bias hypothesis. *Social Forces*, 54, 140-158, 1975
- Heber, R. An experiment in the prevention of cultural familiar mental retardation, environment, intelligence and scholastic achievement . A compilation of testimony to the Senate Committee on Equal Educational Opportunity. Washington, DC. US Govt. Printing Office, 478-493
- Hunt, J. Mc V. The Psychological basis for using preschool environment as antidote for cultural deprivation *Merill Palmer Quarterly*, 10, 209-248, 1964
- Jaeger, R. M. and Freijo, T. D. Race and sex as concomitants of composite halo in teacher's evaluative rating of pupils. *Journal of Educational Psychology*, 67, 226-237, 1975
- Jensen, A. R. How much can we boost IQ or scholastic achievement ? *Harvard Education Review*, 39, 1-123, 1969
- Jensen, M. and Rosenfeld, L. R. Influence of modes of presentation, ethnicity and social class on teachers' evaluations of students. *Journal of Educational Psychology*, 66, 540-547, 1974
- Jeter, J. Can teacher expectations function as self-fulfilling prophecies. *Contemporary Education*, 46, 161-165, 1974
- Jones, R. A. *Self-fulfilling prophecies ; Social, psychological effects of expectancies*. Lawrence Erlbaum Associates, 1977

- Kiesling, H. J. *A study of successful compensatory education projects in California*. Sanata Monier: The Rand Corporation, 1971
- Miller, C., McLenghlin, J. A., Haddos, J. and Chansky, N. M. Socio-economic class and teacher bias. *Psychological Reports*, 23, 806, 1968
- Panda, K. C. and Guskin, S. L. Effect of tutor's locus of control and expectancy information on tutor behaviour and pupil performances. *Indian Journal of Behaviour*, 1 36-44, 1976
- Panda, K. C. and Bartel, N. R. Teacher perception of exceptional children. Centre for the Study of Mental Retardation, Indiana Univ., 1970
- Persell, C. H. *Education and Inequality*. New York : The Free Press, 1977
- Pugh, L. G. Teacher attitudes and expectations associated with race and social class. *AERA*, Chicago, 1974
- Rist, R. C. Student social class and teacher expectations : The self-fulfilling prophecy in ghetto education. *Harvard Education Review*, 40, 411-451, 1970
- Robinson, L. A Teacher' cognitive complexity and cognitive demands made upon high and low achieving students. Doctoral dissertation, Indiana University, *Dissertation Abstract International*, 34, 4044A, 1973
- Rosenthal, R. and Jacobson, L. *Experimental artifacts in behavioural research*. New York : Appleton Century Crofts, 1966
- Rosenthal, R. and Jacobson, L. *Pygmalion in the classroom*. New York : Holt Rinehart-Winston, 1968
- Rosenthal, R. Teacher perception and pupil learning. In R. D. Strom (Ed.) *Teacher and the learning process* Englewood Cliffs, N. J. : Prentice Hall, 33-60, 1971
- Rosenthal, R. The pygmalion effect : What you expect is what you get. *Psychology Today*, 12, 1974
- Rosenthal, R. Teacher expectation and their effect on children. In G. S. Lesser (Ed.) *Psychology and educational process*. Glen View, Ill. : Scott Foresman, 64-87, 1977
- Rosenthal, R. On the social psychology of the self-fulfilling prophecy : Further evidence for pygmalion effects and their mediating mechanism (in press)
- Sever, W. B. Effects of naturally induced teacher expectancies. *Journal of Personality and Social Psychology*, 28, 333-342, 1973
- Silberman, C. *Crisis in the classroom*. New York Random House, 1970
- Silberman, M. L. Behavioural expression of teachers' attitude towards elementary students. *Journal of Education Psychology*, 60, 402-407, 1970
- Snow, R. Unfinished pygmalion. *Contemporary Psychology*, 15, 197-200, 1969
- Sutherland, A. and Goldmid, M. L. Negative teacher expectation and IQ change in children with superior intellectual potential. *Child Development*, 45, 852-856, 1974
- Thorndike, R. L. Review of pygmalion in the classroom. *American Educational Research Journal*, 5, 708-711, 1968
- Wax, M. L. and Mux, R. Cultural deprivation as an educational ideology. In Eleanor B Leacock (Ed.) *The culture of poverty*. NY : Simon and Schuster, 127-139, 1971
- Wesler, R. L. and Struuss, M. E. Experimenter expectancy : A failure to replicate. *Psychological Reports*, 22, 667-688, 1968

□

Are the Educational Standards Deteriorating ?

A Research Report

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This study was undertaken in the twin cities of Hyderabad and Secunderabad to ascertain the views of some responsible persons working in the field of education with respect to the level of standards of education. Ten indicators for differentiating the concept of 'standard' were developed which were evaluated and accepted by a group of 50 persons—9 principals, 25 senior lecturers and 16 educational experts. Inferences were drawn on the basis of three indicators supporting and three opposing the view that educational standards are falling. It was felt reasonable to conclude that standards are not really deteriorating or falling. Finally, a general suggestion was projected by the investigator that only certain terms are to be looked and understood from a different perspective, as their connotative aspects have undergone a rapid change with the changing times and social order.

VERY OFTEN people talk about the problem of falling standards of education. The problem gets magnified when some results appear in the newspaper, giving a tally of number appeared, number passed and so on. Even the remarks of the examiners confirm about the falling standards of education or poor performance of students in examinations. Bhattacharya has made it clear how the fall is noticed at every level and in every type of education :

The basic human materials for being processed during training are at present poorer than before. The knowledge of content, the personality of the teacher and his interest in the profession do not compare very favourably at present.¹

¹ S. Bhattacharya. A symposium for evaluation of our educational standards : A Report. Baroda : CASE, 17, 1965

The University Grants Commission amplifies the public opinion :

Standards are said to be unsatisfactory from the point of view of the expectations entertained by public, including employment agencies, government departments, etc².

Thus, it appears that the problem is widespread and even universal, covering the whole range of education that one can get in schools and colleges. However, some advocate that the standards are not falling and contend the figures as exaggerating about the small fall due to the explosion of knowledge and expansion of education. This view is supported by the observations made in the UGC report which observes ‘

It cannot be said that there has been an overall deterioration in standards. Standards are declining from the point of view of examination results and with reference to expectations of employing agencies and the general public. However, because of difficulties entailed in a correct evaluation of standards, it cannot be said categorically that standards have deteriorated during the last 10 or 15 years³.

It is thought-provoking to consider whether standards in education are really falling or not. However, as has been observed by the Commission, “there is no standard criteria for the evaluation of standards”, a little contribution towards this aspect was thought to be made by the present investigator for excavating the facts and realities.

Review of the Work Done in the Area

As it is, very little has been done for establishing or following up the objectives laid down in the curriculum of our educational policies. However, about the higher education one commission has successfully brought out the report about the educational standards. It was headed by Prof. N. K. Sidhanta, Vice-Chancellor, Delhi University, in 1961, sponsored by the UGC. The committee felt that the best students were good as ever ; the average product of an Indian university does not compare favourably with

²UGC Report of the committee on educational standards. Delhi : Publications Division, Govt. of India

³ibid.

his counterpart in some of the well-known world universities. Reasons were given to be "enormous expansion of education which diluted facilities" and suggested that "new universities to be set up strictly under Central Government control". The committee referred to the upliftment of input standards, examination policies, teacher-pupil relationship, and invariably the burning and unsettled issue of medium of instruction, for improving the standards.

The symposium 'Are our educational standards falling?' has done a great help to the problem. Many opinions were brought into close examination. Hiren Mukherji and M. N. Kapur found the young man of this decade better than the young man of the past as he is "more satisfied, balanced and confident than his counterpart two or three decades ago". However, Mathai was of the opinion that though the postgraduate students of today are in no way inferior to the students of today, at the graduate level certainly they are.

Thus no calculated attempt appears to have been made for solving the problem in general and more especially in the twin cities of Hyderabad and Secunderabad

Methodology

Limitations

- i. With the insight obtained from the review, it was felt to establish the workable definition of 'standards'. For the purpose, only higher educational field is preferred.
- ii. The institutions covered for the present study are all situated in the twin cities of Hyderabad and Secunderabad.
- iii. Only English-medium institutions were included in the study.
- iv. All the institutions included in the present study invariably impart education at the first degree level and some of them offer courses even to the postgraduate level.
- v. Step-wise analysis was not preferred for want of resources.

Establishing the Workable Definition of 'Standard'

For this purpose the conceptual analysis of the term was undertaken.

⁴Samuel Mathai. Are our educational standards falling ? A symposium *Education Quarterly*, 11-13 March 1964

It was treated as the breaking of a complex concept into its constituent parts. This removed ambiguity, obscurity, and inconsistency and thus helped the investigator to achieve his objective more specifically. However, the disadvantage in this kind of analysis is that, while the concept gets a clean form, it doesn't help in giving scope for others to add any points which the investigator has not included. To explain or define the meaning of a concept such as 'standard' in workable terms is a difficult task. To comprehend the idea itself involves perceptions based over the individual's experiences. It is easy to understand but difficult to define in an universally acceptable manner. However, for the present study, the author feels that the three stages described by Rommetveit Ragnar⁵ may be utilized satisfactorily. (i) to develop social concepts through direct experience, (ii) to evaluate, and (iii) to become articulate with the concept. In this order the social concept 'standard' was tried to be explained.

Differentiations

It was thought that 'educational standards' may be understood on the basis of the following indicators :

- | | |
|--|---|
| 1. Expression in spoken and written language | English—being the medium of instruction only at higher educational level |
| 2. Deficiencies in language | Grammatical mistakes, spelling mistakes, etc. |
| 3. Comprehension | Lectures of the lecturers, material read from the textbooks, journals, etc |
| 4. Reproduction of the material | References, definitions and symbolic representations, etc. being recalled |
| 5. Achievement | Marks or grades or classes obtained |
| 6. Discipline | Behaviour in and outside the class, observing the schedules given for the examinations, vacations, etc. |
| 7. Moral behaviour | Respect to elders, institution's property, colleagues, opposite sex members, etc. |
| 8. Adaptability | Accepting the changes in the originally given schedules, increase or decrease in the financial aspect of the institution, change in locations, etc. |
| 9. Creativity | Original contribution to the field or area of course pursued, thought-provoking questioning in the class, etc. |
| 10. Overall impression | General knowledge, participation in construction, extra-curricular activities, etc. |

⁵Cf. W. W. Lambert and W. E. Lambert *Social Psychology*, Prentice-Hall, pp. 44-45, 1964

Thus, it is proposed to comprehend the concept in terms of the above given indicators.

Evaluation

To evaluate the concept of 'standard', it was thought judicious to circulate these ten indicators for establishing their validity as relevant and substantial or not among educationists. For the purpose, a list was prepared including the above nine indicators and one blank. It was circulated among the educationists as per details given below

- | | | |
|--|---------|--|
| 1. Principals having more than three years' experience | 12 (9) | Principals belonging to affiliated colleges offering graduation onwards, situated in twin cities only. |
| 2. Senior Lecturers having more than 10 years' experience | 25 (25) | -do- |
| 3. Educational Experts having more than 12 years' experience | 20 (16) | People connected with educational policy-making, Field Adviser, SCERT personnel, etc |

In all 50 persons returned the circulated list of indicators. The only suggestion made by them was to include the 'overall impression' as one of the indicators which was promptly accommodated as the tenth indicator. For the purpose of evaluation before articulation the investigator interviewed for a definite comprehensible description. Ten of the above 50 experts were selected randomly included two principals, four senior lecturers and four educational experts. The main idea of this interview was to obtain a standard description about each of the indicators so that the individual experiences of persons answering or reacting about 'standards' may not be reflected. To illustrate, for a person who was educated during the British era (now occupying a high position in the educated during the British education field) the clear grammatical marking and correct spelling may impress more rather than the content or matter. The modern language experts to a large extent follow the Americanized English wherein the unnecessary letters from a word are appreciably dropped, viz. Colour—color, Behaviour—behavior, etc. The latter will be at a disadvantageous position when he is observed by the person who was educated as per the British standards. Thus, to give, as far as possible, a standard idea regarding the indicator it was preferred to obtain the views of the experts for delineating them. The consolidated views of the experts are given below :

1. *Expression in spoken and written language* : Irrespective of the grammatical as well as spelling errors, if the student can communicate his views without distur-

ting the main sense of what he wanted to say, it would be treated as normal. Above it is good and below it is bad.

2. *Deficiencies in language* : Apart from the above, if the student uses other than English language in between the conversation or written passage, or tries to communicate through gesticulation, or struggles hard to obtain a particular word and spends time to think or uses catch or words, viz. 'you see', 'yea', 'then', etc. at least once in a sentence then he should be treated as bad or poor. If the student can do the job only by taking the help of the above, only once, or twice, in a paragraph or a minutes' conversation then he may be treated as normal. Without taking the help of any of the above rudiments, if a student can express his views then he may be treated as 'good'.
3. *Comprehension* : Without much difficulty if the student can write down the points explained by the lecturer in his notes and prefers always to read textbooks and use the reference material, then he may be treated as 'good'. Just noting down the dictated notes (if they were given) using the textbooks only when insisted then he may be treated as 'normal'. If he commits any mistake or expresses his inability to do either or both of the above-mentioned activity then he may be treated as 'poor'. Even in the dictated notes, if mistakes occur at the rate of two per line, then also he may be treated as 'poor'.
4. *Reproduction of the material* : If a student can correctly reproduce the formulae, write the principles or laws correctly, uses code forms or short forms for speedy noting, refers the material with its authors' name or any other detail correctly, and remembers the details minutely, he may be treated as 'good'. With some difficulty if a student can do all the above, writes the true forms of words dictated, remembers the main gist of the topic, can somehow manage and reproduce the formulae, etc then he may be treated as 'normal'. If a student can do the above only after referring his notes he may be counted as 'poor'.
5. *Achievement* : First division marks in each or overall subjects (or equivalent grades), and up to 55 per cent marks or equivalent may be treated as 'good'. Students obtaining less than 55 per cent and up to third division (either in all subjects or in average) may be grouped as 'normal'. Students who fail in all or at least in two subjects may be considered as 'poor'.
6. *Discipline* : Students who never approach the institution's authorities for asking either postponement or preponement of any of the institutional schedules, occupying the seats before the lecturer enters the room, adhering to the sessions' prescribed last dates (for submission), and informing the lecturer beforehand about their probable absence from the class, may be treated as 'highly disciplined' or 'good'. Students falling in line with others and stand in groups for representations (without active participation), enter the classroom along with the lecturer and give excuses to the lecturer for their absence from the class (after absents) may be considered as 'normal'. The initiators of representations, schedule-breakers, late-comers, and exhibitors of an ego of college studentship may be treated as 'poor'.
7. *Moral behaviour* : Slightly goes hand-in-hand with the above aspect. All those who show respect to elders, opposite-sex members, institution's property, share their views with friends, sociable, adjustable and prefer to remember that they are students first and individual next, may be treated as 'high

in moral aspects' or as 'good'. Students respecting others only when they are sure that there is some benefit for them, enjoy jokes and teases opposite-sex members, first give preferences to their self-pleasure (if not noticed by the people in power) and does not touch the property of the institution only when someone notices or if that material is of no use for the self, may be grouped as 'normal'. Students who cannot resist teasing the opposite-sex members, elders, new lecturers, cannot resist to help but enjoy the institution's material for their emotional satisfaction including burning or breaking the same for attracting the attention of the authorities to their problems, and possess no rigid and fast rule or mode of behaviour may be grouped as 'poor'.

8. *Adaptability* : Students who readily adjust themselves to the changes made by the authorities in the institutional policies or schedules of timings or fees, etc. may be treated as 'good'. Those who resist inwardly in the beginning but later understand and 'be happy' may be considered as 'normals'. Those who organize strikes, group meetings, or even initiate the demonstrational ideas or make personal representations to the authorities without going into the merits or ins and outs of the changes, may be grouped as 'poor'.
9. *Creativity* : This is a bit difficult aspect. Those students who do not spend their energies in gossiping, viz. discussing about movie, cricket, fashions, etc. utilize their leisure in recopying their notes, or building up constructive criticism about the new points of the classroom lecture, or ask thought-provoking questions in the classroom and answer the same in a very logical manner, or exhibit a behaviour which is characterized by originality, adaptiveness and realization, may be treated as 'highly creative' or 'good'. Students who can perform all the above tasks except with clarity and less in number of times, say only once in a week (out of six periods only once this kind of behaviour is exhibited) or even more, may be considered as 'normals'. Students who are true to the studentship characterized by regular attendance (physical) in the class without participation in any of the discussions even, may be considered as 'poor'.
10. *Overall impression* : Students who actively participate in all the activities of the institution, readily accept activities which are suggested by the authorities, possess sound general knowledge (about the latest scientific and technological developments which appear in the newspapers) and put their views boldly before the authorities without being detrimental to the normal functioning but on the other hand add to the functioning of the activities, may be treated as 'good'. Those who keep day-to-day knowledge, know everything about the institution in which they are studying, participate in the activities only when it is made compulsory and complete the assigned task without giving any suggestions or constructive amendments, may be treated as 'normals'. Those who oppose and drag into a conversation about the plans of the institution, do not keep themselves abreast with the developments around them in the world and try to spoil the activity or its spirit, may be treated as 'poor'.

Articulation

All the ten indicators were defined in a specific and definite way for the purpose of establishing the real fact about the most commonly talked

aspect: 'Are the educational standards really slouching'? Thus, the stages described by Rommetveit Ragnar⁶ are accomplished.

Data Collection

Cyclostyled copies of the ten indicators in the manner described (articulated) were prepared. They were circulated among a group (total 130) of principals of degree colleges, senior lecturers, university lecturers, and training college lecturers. They were requested to mark their preference under one of the three alternatives provided against each indicator. The preference was about the expert's personnel opinion regarding the majority of their student's expressive behaviour, as specifically pointed out in the indicator.

The three alternatives are: 'good' (majority of the students exhibiting the behaviour, described in the indicator); very often, 'normal' (the behaviour being not many times exhibited by the students which doesn't mean that they never exhibit), and 'poor' (majority not exhibiting the behaviour given in the indicator always or on many occasions). Accordingly, they have been worked out and returned by them. Out of them, 101 copies were returned, which were processed for further inferences. However, the investigator took the liberty to drop two copies which compared to be a bit shabby, for the matter of statistical convenience in processing the data. Thus, 100 copies obtained back were considered for the present purpose.

Analysis of the Data

For drawing clear inference regarding the nature of the standards it was planned to give weightage to the opinions given by the 100 experts in the field. 'Good' was a positive aspect and hence +1 point; 'normal' being neutral only 0 point, and 'poor' being negative -1 point were thought to be judicious for the present purpose. Thus, all those who answered to the indicators as 'good' were assigned +1, 'normal'—no point, and 'poor' -1 point. Assuming that all the experts have given 'good' for a particular indicator then it will amount to 100 points. If 50 give 'good' and 50 others say 'poor' then the total score on that particular will be counted as +50 and -50, which totals to 0. Further, if 30 say 'good', 30 others as 'poor' and the remaining 40 as 'normal' then also the total will round up to 0 for that particular indicator (+30, -30 and 40 zeros). Thus, the scoring was done for the indicators and the details are shown in Table 1.

From Table 1 it is clear that indicators at Serial Nos. 1, 4 and 10 have

⁶op. cit.

TABLE 1
THE WEIGHTAGE GIVEN BY THE EXPERTS TO EACH OF THE
INDICATOR INCLUDED FOR ARTICULATING
EDUCATIONAL STANDARDS

<i>S. No.</i>	<i>Indicator</i>	<i>No. of experts said 'Good'</i>	<i>No. of experts said 'Normal'</i>	<i>No. of experts said 'Poor'</i>	<i>Total score</i>
1	Expression in spoken and written language	28	20	52	-24
2.	Deficiencies in language	38	28	34	+4
3.	Comprehension	39	30	31	+8
4.	Reproduction of the material	32	22	56	-24
5.	Achievement	65	10	25	+40
6.	Discipline	52	17	31	+11
7	Moral behaviour	35	30	35	0
8.	Adaptability	48	30	22	+26
9	Creativity	38	24	38	0
10	Overall impression	26	10	64	-38

obtained negative scores. Indicators at Serial Nos. 2, 3, 5, 6 and 8 possess positive scores and finally the indicators at Serial Nos. 7 and 9 have nullified and obtained zero value.

The investigator prefers to make an independent suggestion here about the furtherance of the discussion, i.e. for the sake of validity of the opinions expressed by experts some statistical treatment should be given. The convenient statistical measure is to compute the chi-square value indicator-wise, and the same was accomplished (Table 2).

As far as the normal category is concerned, no discussion is required. But to decide whether the students are good or poor with regard to the indicator, the significant values were utilized. Indicators at Serial Nos. 1, 5, 6, 8 and 10 were found to be significant at 1 per cent level. Hence, the expressed opinions of the experts are very reliable. Similarly, with regard to the fourth indicator, the opinions expressed are significant at 5 per cent level. Thus, in all, six were found to be significant expressions of opinions. They are opinions with regard to expression in spoken and written language (1 per cent level); reproduction indicated at 5 per cent level; achievement at 1 per cent level, discipline at 1 per cent level; adaptability and all impression at 1 per cent level.

ARE THE EDUCATIONAL STANDARDS DETERIORATING ?

TABLE 2
CHI-SQUARE VALUES COMPUTED FOR EACH OF THE INDICATORS
ALONG WITH SIGNIFICANT VALUES

Sr. No.	Indicator	Scores Assigned to the Opinions of the Experts			Chi- Square Value	Preferen- ces for Freedom	Signi- ficance Level	Remarks
		Good	Normal	Poor				
1.	Expression	28	20	52	16.6401	2	1%	Retained
2.	Deficiencies	38	28	34	1.5201	2	NS	Rejected
3.	Comprehension	39	30	31	1.4601	2	NS	"
4.	Reproduction	32	22	56	9.0342	2	5%	Retained
5.	Achievement	65	10	25	48.5001	2	1%	"
6.	Discipline	52	—	31	17.6201	2	1%	"
7.	Moral behaviour	35	30	35	0.5001	2	NS	Rejected
8.	Adaptability	48	30	22	10.6401	2	1%	Retained
9.	Creativity	38	24	38	3.9201	2	NS	Rejected
10.	Overall impression	26	10	64	46.1601	2	1%	Retained

Discussion

Indicator analysis shows that the first one in the list, 'expression in spoken and written language', appears at 1 per cent significant level. Experts felt that majority of the students are poor in this indicator. Thus, the casting of opinion is negative over the 'standards' (as indicated in terms of its indicator). The fourth indicator, 'reproduction of the material' is found to possess significant opinions (5 per cent level), once again. Here again, the experts felt that majority of the students are unable to reproduce the material perfectly. This is a negative count and contributes for the falling standards in education. Surprisingly, the next significant indicator (1 per cent level), is 'achievement' which was opinionated to be good. This adds to the five standards and raises many important points for more detailed discussion.

Even though many feel that the 'discipline' is a contributory factor for deteriorating educational standards, experts were of the opinion that 'discipline' is good (1 per cent significant level). Another positive count in support of educational standards is good. 'Adaptability' is also very sound among our students, according to the experts (1 per cent level). They

adjust very well and help in maintaining and upholding the educational standards (the third positive count). However, the overall impression appears to be significantly (1 per cent level) 'poor'. This is a negative point and favours the expression that educational standards are deteriorating

Comments and Conclusions

In all, three indicators were found supporting and three were found to oppose in terms of indicators regarding the standards, pushed forth by the experts significantly. The equal number of indicators on both sides (supporting and opposing the view that the educational standards are deteriorating) does not permit to conclude on any side. Just as the legal principle states that, 'a man is innocent until he is proved guilty', it was preferred to consider that the standards are not falling and they are just as they were in the olden days. The possible counter arguments to the view which supported the idea that standards are falling, were thought of, and the discussion was continued from that angle. The investigator feels to examine the above indicators in view of the following convictions he possesses, and comments over them.

1. Expression in Spoken and Written Language

(English is the language here) This indicator of 'standards' is adjudged to be very poor. The deterioration is inevitable in view of the many possible aspects of our educational system, as described below :

(a) *Multi-lingual media of instruction* : Those who join the higher educational institutions have to pass through the secondary level, where different media of instructions is available to them : Telugu, Hindi, Urdu, Marathi, Kannada, Tamil and inevitably English. Tertiary stage, with little exceptions, is to a large extent, through the English medium only. Thus, the expression of spoken and written language, naturally suffers. Thus the problem of medium of instruction is an important one to be tackled, before one thinks about the standards of education.

(b) *Dual approaches to the language* : Even for English the spellings, construction of sentences, etc. there appears to be at least two approaches. One is American, where the phonetical adjustments are many, and the other approach is Victorian or British, where emphasis is more on the traditional principles. This confuses the student to a greater extent. Further, the evaluator also will be giving dual rating to the student basing over his own afflictions to either of the approaches to the English language. In view of the above, this indicator for standards has to be considered as less contributory for saying that the standards are deteriorating,

2. *Reproduction of the Material*

This indicator was also significantly opinionated as 'poor'. Again, the present investigator wished to raise two points for a deep thought on the part of the readers. The first is about the explosion of knowledge. Each moment, lots of discoveries, innovations, developments, and growth in knowledge is taking place throughout the world. By the time knowledge about a certain aspect is dissipated to the interested in the world, some other new development takes place. At times, quite opposite themes may also come into clash. Under such circumstances, the students' knowledge usually gets disturbed especially when a pinpointed reproduction of material is sought. Secondly, it amuses when one expects the same 'reproduction of material' even when the educational emphasis for teaching-learning process has shifted to objective-based pattern. The essay type reproduction of material really cannot be expected under the new approach to education. Similarly, when the overall personality growth is emphasized and practised now a days, the amount of inspiration the student obtained is important and not the quantity of subject-matter crammed.

Thus, the writer takes the liberty to express his opinion that the 'reproduction of material' by the student also is just almost the same as it was in the olden days, but has differed in pattern commensurating with the modern approach. Thus, from this indicator, it cannot be agreed to and it may be concluded that the standards have deteriorated from the old point of view only, but not as per the modern approaches. Hence this indicator was retained with its significance-level being just 5 and at 1 per cent level. The argument does not stand that reproduction of material is poor and it needs some probe, if it has to be considered as a real indicator for saying that the educational standards are deteriorating.

3. *Achievement*

This indicator was significantly (at 1 per cent level) established Experts felt that the achievement is 'good'. In view of the statistical treatment given to the data this opinion is valid. Hence, it may be concluded that 'achievement' of the present-day students is 'good'.

4. *Discipline*

Surprisingly, experts significantly felt that this indicator also is 'good' which poses some discussion, especially when students' indiscipline is thought to be a burning problem of our nation. The experts who gave their opinion regarding this indicator, probably felt that the majority of students are highly disciplined particularly their own students exhibited

good discipline. This shows that, probably other students (other than their own), may be less disciplined in case of students' indiscipline is an accepted fact.

A couple of points may be of interest to the readers. First, the students having good teacher-pupil relations are well disciplined. Secondly, indisciplined students are very few and disciplined students are more in number. In case, indiscipline is generated, it will be a matter of exaggeration or over-shadowing of a little negativism over a large positivism with respect to discipline. Hence, with some more rapport between the teachers and pupils, and with a bit of control over a few indisciplined elements, the discipline on the students may be completely achieved. This indicator also significantly contributes to the opinion that educational standards are not deteriorating

5. *Adaptability*

This indicator also was significantly established as 'good'. Our students (a majority) have good accepting ability about the changes imposed over them by the authorities. Experts felt that their students rarely or never oppose them.

How the demonstrations and strikes, etc. are to be explained which occur regularly in institutions. This has to be observed and thoroughly investigated especially in view of the revelation made by the experts, who endorsed that a majority of their students are good in adaptability. Then, who are those who agitate whenever a change is brought into existence? However, adaptability as an indicator about the educational standards has nothing to contribute negatively. If lack of adaptability in students gives rise to the deterioration in standards, then, this indicator has to be set aside and it may be concluded that educational standards are not deteriorating.

6. *Overall Impression*

This indicator shows that the general impression of the experts, however, is significantly 'poor' about the majority of their students. Generally, the 'halo' effect plays an important role when others are rated. General opinion in the public, without any personal attention and careful consideration, got carried over by the experts too. Irrespective of the other indicators, this particular indicator contradicts the other positive indicators. Hence it is concluded that this indicator, even though rated as 'very poor', has to be neglected in view of the above discussion.

To sum up, educational standards are really not deteriorating. This idea has substantially been established by the three indicators which opposed

this view and gave certain counter-explanations. Hence, it can be concluded that educational standards are not deteriorating. Only certain terms have to be looked and understood from a different perspective. The standards are as they were—probably even more than what they were in the olden days—at least in the twin cities. The new perspectives from which the educational standards have to be understood may be worked out by other like-minded investigators. □

Educational Research by Indian Research Scholars at Foreign Universities : *A Review*

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INDIAN SCHOLARS go for earning their research degrees to different universities in the advanced countries even now. But as of today, there is hardly any systematic record of the contribution made by these Indian research workers in the area of education. Observations and remarks made by authorities in some of the foreign universities bear testimony in this regard. For instance, Dissertation Secretary of the University of Michigan reports that the university does not maintain a list of Indians who have worked in this university for their Ph.D.'s in education. Similarly, the University of Illinois at Urbana-Champaign lists a dozen names of Indian who conducted research there but their "records do not specify whether they have graduated with the master's degree or the doctorate". Again, the Cornell University feels sorry to state "We do not have any means of retrieving this information," and the Department of Education of Duke University is itself "anxious to have this information". Obviously, under these circumstances most of the work done by Indians naturally tends to remain unavailable to the future band of research workers, therefore, the need is to keep all this together at one place in some form and see that it is accessible to most of them. The present attempt at the compilation of the titles of doctoral level research in education done by Indians in a few foreign universities since 1950's appears to be the first. It has not been possible to tap all available sources, in a single stroke. The initial efforts to collect infor-

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mation was restricted to popular universities and institutions of higher learning in the USA, the UK, Sweden, Australia, France and Canada.

Country-wise Response

1. *USA* : Of the nearly sixty¹ universities/institutions of higher learning addressed in the USA as many as 46, i.e. about 77 per cent responded. There is also a pattern in these responses. It is only 20 universities/institutions where Indian scholars have done their research work in the field of education. Universities like California at Berkeley (10) and Texas at Austin (6), Chicago (9), Wisconsin at Madison (9), have been quite popular. At the remaining sixteen, one to three Indian scholars did their Ph.D./Ed.D. research work. In all, about 60 Indians earned their Ph.D./Ed.D. at these 20 places. Besides, a group of seven other universities did turn out a few research scholars but they were not in a position to indicate either the level of work done or the country to which they belonged. However, a dozen universities have emphatically stated that they have never had an Indian research scholar at their institutions. Similarly, five universities mentioned that they did not provide Ph.D. in education and hence had no such students. Two more universities, however, had one Indian student each whose work was in progress.

2. *UK* : Of the four universities addressed, the University of London Institute of Education had awarded Ph.D. degree to 33 Indian scholars, University of Birmingham to five and the University of Leicester to only one such scholar. However, the University of Leeds could not trace any research scholars of India origin with them.

3. *Other Countries* : Only two universities each in Australia, Canada, Sweden and France were contacted. None responded from France, but one each in the three other countries did have a Ph.D. scholar. They are Australian National University, Saskatchewan University in Canada and Uppsala University in Sweden.

Thus, in spite of the restricted approach adopted in selecting foreign universities, it has been possible to identify and collect information from over a hundred Indian scholars. All these had their Ph.D. or equivalent degrees in various branches of education from about 26 universities in five countries.

¹ Figures in brackets indicate the number of scholars turned out,

Area-wise Distribution

For the purpose of convenience, the entire field of educational research could be classified into ten major groups: (i) Foundations of education, (ii) Levels of education, (iii) Types of education, (iv) Curriculum development and instructional material, (v) Examination and grading, (vi) Instructional technology and mass media, (vii) Innovation in education, (viii) Non-formal education, (ix) International education, and (x) Surveys and other educational researches. Sub-division of this taxonomy is needless. It is a truism to say that none of the classified groups could ever be exclusive of each other. There is thus a chance of overlapping. Even so far analysing the titles of educational researches done by Indian scholars abroad, it might serve some useful purpose.

The greatest thrust, among these studies, has been on the foundations of education. The foundation areas include 34 studies in psychology of education, half a dozen each in philosophy of education, including political philosophy and sociology of education, and about ten in various aspects of history of education. Obviously, more than 50 per cent of the identified scholars contributed to the foundations of education in one way or the other. There did not appear to have any study been made on the economics of education under this category.

Under types of education, teacher education has been the major focus for over a dozen scholars, followed by half a dozen in agriculture education and language education. One to three studies each in aspects like science education, social education, educational administration, technical education, women's and population education, business and commercial education, etc. were also made. In the typology of two areas, viz. medicine and law education were conspicuous by their absence in these studies. Then by levels of education, 17 research scholars worked for the school stage (8 in secondary, 5 in primary, 4 in general school education) while another three in vocational education and only two in university education. Obviously, problems pertaining to the pre-school stage of education have not been tackled by any of these research workers. As regards other areas, there are only six studies on evaluation and examination, three on curriculum development and preparation of instructional materials, three on non-formal education and instructional technology and two each on general problems of Indian education and educational research. A few researches are also available presenting the comparative picture of education in India and other countries. However, no scholar appears to have worked in the area of innovation in education.

Nature of Studies and their Implications

Where would this information lead us? How can it serve the purpose of resolving the problems of education or for that matter help the researchers working in the field of education? In what ways will it help the educationists? Are the findings of these studies applicable in the Indian situation? These are some of the basic questions that can be answered only after examining critically the titles, particularly in relation to the areas and subjects researched upon by these scholars. A number of interesting studies seem to have been made under the foundations of education. For instance, Gundappa's work on the 'Influence of manual work on fatigue' (conducted in Sweden), Bhatti's on 'Motivational variables in learning of disabled and normal children' (carried out in Canada), Amarica's on 'Factors influencing learning in pairs', Bhattacharya's on 'Assessment of interests and persistence for the purpose of educational guidance', Kemal's 'Pattern of self-concept in maladjusted and normal children of the age-group 7-12', Mukerjee's on 'Effects of knowledge of results on transfer of learning', Pramanik's 'Experimental evaluation of children's learning in geography in relation to certain environmental and personality factors', Vashi's experimental study of 'Reminiscence in school children', Vasistha's 'Exploration of some of the differences in children's attitudes to authority demonstrated in contrasting school and classroom situations and by differing testing devices', and Verma's 'Effects of some non-intellectual factors on scholastic progress of high and low streams in the comprehensive schools' (all conducted in England), Satoj's on 'Oxygen deprivation and mental retardation' and Bali's on 'The factorial invariance of intelligence tests over grades, sex and chronological age' (done in the US) seem to be some of the important studies of this group which may interest the educational psychologists all over the world and be useful for the teachers too. The importance of educational psychology after all lies in the fact that it helps in making learning and teaching easy and lasting, joyful and creative. Without any reference to any specific country in which these studies have been done, Sharma's work on 'Practices in decision-making as related to satisfaction in teaching', Gupta's on 'Development and evaluation of a game for teaching collegiate accounting', Ghatta's on 'Effects of rapidly presented filmographic advance samplers on learning from a silent motion film', Pratibha Deo's on 'Conditions affecting achievement in algebra in two different cultural situations', Ahuja's on 'Effects of positive feedback on self-esteem' and Sayegh's on 'Relative effectiveness and efficiency of linear programmed materials and conventional textbooks' may perhaps hinge on the pivot of creativity. These

studies may pave new ways and directions to teacher education. For instance, Chandy's study of 'The effects of an in-service orientation on teacher perception', Bhardwaj's 'Relation between teaching styles and levels of aspiration, academic motivation and scholastic progress in third year groups of secondary schools', Shakoor's 'Training of teachers from 1900 to 1939' and Dahiya's 'The relationship of selected biographical and attitudinal factors relating to student selection of faculty as outstanding teachers' are such studies which may help us in this regard. Philosophical and sociological bases are of less importance in the process of education. Studies like Krupal's 'Determining objectives for secondary education in India', Sekhri's 'An analysis of the role of state and local governments in the administration and finance of primary education in India', Mehr's 'Organizational climate of secondary schools in Delhi', Fernando's 'Effects of week-end religious experience on the values of high school students as measured by the Allport-Vernon-Lindzey study of values', Reich's 'Patterns of problem-solving activities of the users and non-users of social agencies', Ahmad's 'Culture change and personality modification : A cross national study of acculturation', Correa's 'Inter-cultural interaction and the world-mindedness of college students', Chatterjee's 'The growth and development of community organization education in schools of social work in India (1936-1969)', Rudra's 'Swami Vivekananda's concept of man', and Garg's 'The new frontiers of modern society ; A study of social crises and identity' can be covered under these categories. A few studies delineating comparative picture of education in India and other countries may also serve some useful purpose. Such studies are : Ghosh's 'The nature of guidance services in the secondary schools of India and the US', Bal's 'Educational objectives of John Dewey and Mahatma Gandhi and an examination of basic education in Punjab', Oad's 'Some current issues in education in relation to the roles played by groups interested in the formulation of educational policies in England and India', Keiawalla's 'Factors influencing the language policies in India and the USSR', Shah's 'Administration and organization of primary education in London and Bombay', Doddana Gowd's 'Survey of problems of adult education in India—with suggestions based on a study of adult education in England and Denmark', and Khasnavi's 'A comparative analysis of social studies programme in secondary schools of India and the US', Kaur's study in 'Evaluation of the science process skills of observation and classification,' Roman's on 'Biological dimensions of the value theory of the ANISA education model', and Abraham's on 'The book, film and instructional materials review programmes of the national science teachers association in the US with implications for similar work in India' belong

to the area of science education and those by Gulati 'An exploration of vocationally relevant motivation among tenth grade boys in Punjab', by Pal entitled 'A psychometric study of engineering and architectural drawing, with special emphasis on selection of pupils and students for technical education', by Zaheer on 'The development of the two-year post-secondary education for business in the Southern New England States', by Dalvi 'Commercial education in England during 1851-1902', and by Singh 'Historical survey of professional education in India—ancient and medieval', related to another area, viz. vocational or technical or business or professional education

Language education and agricultural education are still other fields in which a few research studies have been made by Indian scholars at foreign universities. Some other important studies are : Demmert's 'Critical issues in Indian education 1972-1973', Mehta's 'Analytical study of the strategies for curriculum development in population education', Billimoria's 'Non-formal education : The moving frontiers', Dhar's 'Graduate unemployment and the planning of university education in India', Mukhopadhyay's 'Critical analysis of educational policy in India since independence with special reference to the economic development of the country', Sharma's 'Analysis of relationship between stability with illustrative case studies', Kanungo's 'Language controversies in India', Sen's 'Educational administration in West Bengal since 1947—Problems of control, direction and finance', Sircar's 'Development of education among girls and women in modern India' and Tickoo's 'History and development of university education in modern India with special reference to development since 1846'. One could also notice researches on educational research itself. Studies by Gupta on 'Inter-class correlation in educational research' and by Vivakananthan on 'The development of a planning system for educational research and development centres' belong to this category and are positively suggestive of new dimensions.

It is interesting to observe that although facilities for conducting educational research exist in India as well, Indian scholars continue to go abroad for this purpose. When one considers two additional points in this connection, the situation appears a little farcical. Firstly, most of the topics selected for the study have little or no relevance to India. In the present analysis such topics add up to 30 per cent of the total output. Also, when the topics pertain directly to the situation obtaining in India, the research scholars face considerable difficulty in laying their hands on proper source material. In such cases when the material is easily accessible, typical western prejudices tend to get reflected in the research analysis. Language

problem, the problem of minority education, the use of technology in education, etc. are such areas where the supervisors wield indirect influence on the Indian research scholar. Secondly, the Western supervisors and educational administrators complain about the tendency of Indian students to stay back in the West. We came across a typical example where an American university wrote back to inform against an Indian Ph D. According to this educational administrator the Indian student was prepared for India. He would not be able to do justice in the USA as he had not been equipped with the competencies required there. This, we believe, is the most interesting observation. It leads us to hold that the US universities at least, if not all, have double standards. One for their own students and the other for the foreign scholars.

In view of these implied double standards, is there a need to have a fresh look at permitting Indian scholars to go abroad for their research, particularly when facilities are available in this country? One wonders whether we are not wasting our scarce foreign exchange on an area where drastic revision of policy should be involved. We might also like to consider at some stage the quality of scholarship that we need in this country. Perhaps the western models have lost relevance for us. At the same time India needs to build up library facilities so that any Indian scholar could get all that he needs at one place or at least in one single city.

APPENDIX

Areas of Educational Research

- 1.0 Foundations of Education
 - 1.1 Philosophy of Education
 - 1.2 Sociology of Education
 - 1.3 History of Education
 - 1.4 Psychology of Education
 - 1.5 Economics of Education
- 2.0 Levels of Education
 - 2.1 School Education
 - 2.1.1 Pre-Primary Education
 - 2.1.2 Primary Education
 - 2.1.3 Senior Primary Education
 - 2.1.4 Secondary Education
 - 2.1.5 Higher Secondary Education
 - 2.1.6 Work-Experience
 - 2.2 Higher Education
 - 2.2.1 First Degree
 - 2.2.2 Postgraduation
- 3.0 Types of Education
 - 3.1 Teacher Education
 - 3.1.1 Pre-Primary Teacher Education
 - 3.1.2 Elementary Teacher Education
 - 3.1.3 Secondary Teacher Education
 - 3.1.4 Post-Secondary Teacher Education
 - 3.1.5 Technical Teacher Education
 - 3.2 Technical Education
 - 3.2.1 Diploma/Certificate Courses
 - 3.2.2 Degree Level Courses
 - 3.2.3 Higher Level Courses
 - 3.3 Medical Education
 - 3.3.1 Diploma/Certificate Courses
 - 3.3.2 Degree Level Courses
 - 3.3.3 Higher Level Courses
 - 3.4 Agricultural Education
 - 3.4.1 Diploma/Certificate Courses
 - 3.4.2 Degree Level Courses
 - 3.4.3 Higher Level Courses
 - 3.5 Law Education
 - 3.5.1 Degree Level Courses
 - 3.5.2 Higher Level Courses

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- 3.6 Business Management and Commerce Education
 - 3.6.1 Diploma/Certificate Courses
 - 3.6.2 Degree Level Courses
 - 3.6.3 Higher Level Courses
- 3.7 Special Education
 - 3.7.1 Subject Groups
 - 3.7.2 Community Groups
 - 3.7.2.1 Education of Mentally Retarded
 - 3.7.2.2 Education of Talented/Gifted
 - 3.7.2.3 Women's Education
 - 3.7.2.4 Education of Backward and Tribal Groups
- 3.8 Social Work Education
 - 3.8.1 Diploma/Certificate Courses
 - 3.8.2 Degree Level Courses
 - 3.8.3 Higher Level Courses
- 3.9 Science Education
 - 3.9.1 Formal Science Education
 - 3.9.1.1 Pre-Primary Level
 - 3.9.1.2 Primary Level
 - 3.9.1.3 Senior Primary Level
 - 3.9.1.4 Secondary Level
 - 3.9.1.5 Higher Secondary Level
 - 3.9.2 Non-Formal Science Education
 - 3.9.2.1 Pre-Primary Level
 - 3.9.2.2 Primary Level
 - 3.9.2.3 Senior Primary Level
 - 3.9.2.4 Secondary Level
 - 3.9.2.5 Higher Secondary Level
- 3.10 Language Development and Linguistics
- 4.0 Curriculum Development and Instructional Material
- 5.0 Examination and Grading
- 6.0 Instructional Technology and Mass Media
- 7.0 Innovations
- 8.0 Non-Formal Education
- 9.0 International Education/Documentation/Library
- 10.0 Surveys and Other Miscellaneous Educational Researches.



Ph. D. Theses Abstracts

A Study of Relationship between Personality Patterns and Social Acceptance

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SCHOOL, which is a miniature society, consists of various groups. A student's contact with other members of the group results into likes or dislikes, acceptance or rejection of the members of the group. Findings of Loomis and Green (1947) and Lavier (1949) provide sufficient evidence that the more cohesive and compact the group, the more will be its efficiency. The peer group approval is so alluring to an adolescent that he becomes a virtual slave of it. For the time being the peer group becomes dominant reference group, which to a considerable degree, regulates his attitudes, interests, activities and aspirations. So the peer group acceptance-rejection has far reaching consequences upon the developing personality of the students (Jersfield 1963, Klausmeier 1961). Social acceptance also fulfils the psychological needs of adolescents like need for belongingness and social recognition. Social acceptance is of especial importance for an adolescent who is attempting to gain increased independence from parental control and is becoming more dependent upon the views of his peers. An adequate social acceptance may be characterized by a particular personality pattern and may lead to better personality adjustment.

A large amount of research work has been done on the relation of various variables like intelligence, socio-economic status, sex, etc. with social acceptance (Belfield 1963, Richards 1967, Ram 1964, Gaur 1967, Nehru 1967,

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Deo 1969, Sharma 1970, Badami and Tripathi 1973, Rao and Banerjee 1973) with the exclusion of personality differentials. It would, therefore, be significant to study personality variables in relation to social acceptance.

The problem, besides its educational significance, has importance for manpower planning. The foremost aim of education is to promote comprehensive, balanced and integrated development of adolescent's personality. Wastage, stagnation, poor academic achievement and students' unrest, etc. are among the most urgent and pressing problems of our nation which cannot be neglected for long. These problems are becoming an open challenge to our educational planners and curriculum framers. It is expected that a systematic analysis of some personality factors associated with social acceptance would serve as an useful guide to ameliorative measures and thereby help in reducing the amount of wastage of manpower and material resources.

Purpose

The main objectives of the present study were :

1. To find out relationship of anxiety, adjustment, extraversion and neuroticism with social acceptance.
2. To find out multiple regression education of social acceptance with (a) Personality variables (anxiety, adjustment, extraversion, neuroticism, (b) Personality variables and intelligence, (c) Personality variables and socio-economic status, and (d) Personality variables, intelligence and socio-economic status variables, for determining their respective contribution to the variation in the dependent variable (social acceptance).
3. To find out multiple correlation coefficients of social acceptance with six independent variables (four personality variables plus two concomitant variables) to estimate the extent of the contribution of the six independent variables towards the prediction of criterion variable, i.e. social acceptance.
4. To find out the partial correlation coefficients between one of the six independent variables and social acceptance after partialling out the effect of other independent variables.
5. To find out, by discriminant analysis, the contribution of personality variables coupled together, and one or both concomitant variables in distinguishing the four groups of social acceptance.

Assumption

It was assumed that the adolescents, who were extraverted, less anxious, least neurotic and well adjusted would be better socially accepted.

Hypotheses

The following hypotheses were set up :

1. A significant positive correlation exists between (a) adjustment and social acceptance ; (b) extraversion and social acceptance; (c) intelligence and social acceptance ; and (d) socio-economic status and social acceptance.
2. A significant negative relationship exists between (a) anxiety and social acceptance, and (b) neuroticism and social acceptance.
3. The personality variables (anxiety, adjustment, extraversion, neuroticism) either one by one or all taken together contribute significantly towards the prediction of social acceptance.
4. The personality variables and one or both concomitant variables either one by one or all taken together contribute significantly towards the prediction of social acceptance.
5. A compound score of (a) personality variables differentiates significantly between groups formed on the basis of social acceptance, (b) personality variables and intelligence coupled together differentiates significantly between groups formed on the basis of social acceptance, (c) personality variables and socio-economic status coupled together differentiates significantly between groups formed on the basis of social acceptance, and (d) personality variables and two concomitant variables coupled together differentiates significantly and optimally between groups formed on the basis of social acceptance.

Method and Procedure

The investigator employed descriptive survey method to study the relationship between personality variables and social acceptance. He employed Dr. Jalota's group mental ability test in Hindi (reusable) for the study of intelligence, Kuppuswami's socio-economic status scale for socio-economic status, Asthana adjustment inventory in Hindi for adjustment, Sinha scale for anxiety, Jalota and Kapoor MPI (short scale) Hindi version for extraversion and neuroticism and sociometric technique for social acceptance.

Selection of the Sample

It was felt that a group of boys whose age ranged between 16-19 years would be the most suitable as the sample for the study, for very young pupils do not build up suitable friendships and do not have strong personality patterns. The adolescent stage is the stage at which the young student forms lasting friendships and conformity to and recognition by the group are of great importance to him. The sample was selected on random basis. The study included 506 male intermediate class students of seven recognized and aided boys' intermediate colleges of Bareilly city. The investigator calculated standard error for the sample selected. It was found to be 0.19 only which is fairly low and shows that the reliability of the sample is quite high.

Major Findings

Some of the major findings are given below :

1. Anxiety and social acceptance have high variability with corresponding coefficient of variation of 52.26 and 82.37 per cent. One possible reason for high variability for these variables may be their non-normal distribution in the population.

2. Social acceptance has a significant positive correlation with intelligence socio-economic status and adjustment. A significant negative correlation exists between social acceptance and anxiety, and social acceptance and neuroticism. Thus hypotheses 1 *a*, *c*, *d* and 2 *a* and *b* were confirmed in the predicted direction. The absence of significant positive correlation between social acceptance and extraversion led to rejection of the specific hypothesis 1 *b* pertaining to it.

3. For the prediction of social acceptance intelligence and socio-economic status variables contributed in a positive and significant manner. However, the contribution of anxiety and neuroticism variables was found negative though significant. Thus among the six predictor variables, only four variables made significant contribution. Personality variables taken together and one or both concomitant variables contributed significantly in prediction. Personality variables account for their contribution to the extent of 21.62 per cent of the variance in prediction of social acceptance. With respect to intelligence, they contributed to the extent of 38.74 per cent, with respect to socio-economic status, 25 per cent, and with respect to intelligence and socio-economic status, they accounted for 39.58 per cent of the total variance to predict social acceptance. Thus hypotheses 3 and 4 were partly confirmed and partly rejected.

4. Intelligence has the maximum contribution to the prediction of social acceptance. Personality variables along with socio-economic status contributed very little in this prediction. Partial correlations revealed that the correlations of social acceptance with intelligence remained high after partialling out the effect of other independent variables. Intelligence, thus, was found to play the major role in acceptance of a man in the social environment.

5. ANOVA for the six predictor variables independently showed that the groups of social acceptance were significantly different for intelligence, socio-economic status, anxiety, adjustment and neuroticism but for extraversion.

6. A compound score of personality variables differentiated significantly between groups formed on the basis of social acceptance because the value of D^1 observed toward combination of variables reached 33.6284. When intelligence variable was added to personality variables, the value of D^1 went up to 96.6491 indicating the maximum contribution of intelligence in maintaining the distances between the groups. The increase in the distance by inclusion of socio-economic status was found to be 47.1182 which suggests that the inclusion of socio-economic status did not increase the distance between the groups in the same magnitude as intelligence did. The addition of both the concomitant variables to personality variables increased the value of D^2 to 107.1668. Thus, the two concomitant variables were found to be chiefly responsible for maintaining the distances between the four groups of social acceptance. Hence hypotheses 5 *a, b, c* and *d* seemed to be confirmed.

Thus, it is evident that though personality variables, either taken together or taken with one or both concomitant variables, are contributing significantly in the prediction of social acceptance and in maintaining the distance between the the groups, yet the major role is played by the concomitant variables, and the maximum one by intelligence variable.



An Investigation into the Present Secondary Education Curricula in Maharashtra with a View to Revision in the Context of Vocationalization of Education at All Levels

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THE PRESENT secondary education curriculum has still not been geared to the various needs and capacities of school-going children. It has not yet appealed to the majority of educationists in bringing equality of opportunity. Again, it does not include vocational subjects which are so necessary for training the pupils to take part in the industrial and economic development of the country. It is essential to study whether there is a place for vocationalization of secondary education in the present system. If not, there is an urgent need to study the problems and difficulties in implementing vocationalized courses.

The Present Study

Almost all states have accepted the new educational pattern recommended by the Education Commission (1964-66). The question is whether to allow all children to continue the conventional academic education right up to 12 years or provide bifurcation leading to vocational courses at the end of Class VII or X. In the first case, colleges will be as crowded as ever, education will be as book-and-examination-bound as ever and we shall be back to square one. It is certain that ultimately the success of the 10+2+3 pattern will depend on whether enough students are siphoned at various terminal stages into vocational, work-based education. That, in turn, depends on whether there are enough courses in different trades and occupations open to them so that they can be taught relevant skills for which there is a demand in the employment market. Secondly, there is a very wide gap between the educational courses and the requirements of the industrialists. The courses have severed so much that at present each employer requires to train his own personnel to suit the job by arranging

*Thesis submitted to the University of Bombay (1978)

short-term courses, apprenticeship schemes and so on at their establishments. Thirdly, the problem of unemployment is very serious. Right persons for right jobs should be the guiding principle for educational planning in the country. The wastage involved in human and financial resources is a great deterrent to the faster economic growth of the country. Lastly, the fundamental issues of wastage, stagnation, drop-outs, scholastic backwardness and so on in our educational system have not been solved yet. Vocationalization of secondary education appears to pave a way towards solving these problems.

The problem under study, therefore, is stated as follows :

An investigation into the present secondary education curricula (Std. V to X) in the Maharashtra State with a view to revision in the context of vocationalization of education at all levels (Construction of new curricula—A frame of reference).

Objectives

1. To investigate the nature, degree and extent of vocationalization achieved through the present secondary education curricula (Std. V to X).
2. To locate different areas in which vocationalization of education at secondary school level can be achieved.
3. To frame syllabi of different vocationalized courses in different areas that can be introduced at all levels of secondary education to suit the individual differences in terms of intelligence, aptitudes, interests, personality traits, attitudes and achievement.

Scope and Limitations

In order to do fair justice to the vastness of this problem, the investigator is forced to limit the scope of research to the following aspects :

1. The area of investigation is limited to Greater Bombay—the area specified by the Bombay Municipal Act of 1956 [Further extension of limits and Schedule BBA (Amendment)].
2. Though there are references to various aspects of vocational education the study mainly investigates the nature, degree and extent of vocationalization achieved through the present secondary education curricula.
3. The study is also concerned with preparation of syllabi of different

vocationalized courses suited to the secondary school-going population.

4. These vocationalized courses are classified and limited to the following categories : (i) Agriculture, (ii) Commerce, (iii) Technical, (iv) Art education, and (v) Miscellaneous.
5. The classes of secondary education covered are V to X. Therefore, the age-groups covered comes 11+ to 16+.

Procedure

The present study is divided into two parts : (i) The survey of vocationalization achieved, and (ii) The construction of vocational syllabi for the new proposed courses. The survey tries to find out the extent of vocationalization achieved through the present secondary education curricula. It is descriptive in nature. The second, viz the construction of new syllabi consists of the syllabi of vocational courses suitable to secondary school children in the above-mentioned five areas.

The principal tools used for the present investigation are : (i) Interview schedule-cum-questionnaire, (ii) Interviews, (iii) Visits, and (iv) Observations.

The investigator interviewed principals of 30 schools selected on the basis of type of management, the courses they offer, social strata from which the pupils are held. These schools are situated right from Colaba—the south end of Greater Bombay up to Borivali—the north end on the Western Railway and up to Mulund—the east end on the Central Railway. Thus, these schools represent the school population of Greater Bombay fairly well.

The first-hand observation of the teaching of academic and vocational subjects as well as the working on project/hobbies and activities undertaken in the new subjects of work-experience enabled the investigator to examine critically the extent of vocationalization achieved through these subjects. Thus, the data collected by the interviews was verified by observation. Different embassies were visited to get information about the vocationalized pattern of education in their countries as well as to get the syllabi of different vocationalized courses offered by them.

As many as about 50 different industrial and vocational institutions were also visited during teaching hours for vocationalized courses. Syllabi of different vocationalized courses introduced by them were also collected. These visits provided first-hand information about vocationalized courses, run by these institutions.

Conclusions and Recommendations

Various conclusions have been drawn and recommendations made on the basis of the analysis and interpretation of the data collected. The following are some of the important conclusions and recommendations :

1. The majority of school principals are in favour of introducing vocationalized courses at the secondary school level.
2. Vocational education should begin in the lower classes right from Class V onwards with a realistic picture of the world of work. Its fundamental purposes should be to familiarize the student with the world of studies, help him discover himself, study the intellectual tools and rational habits of thought and give meaning to a satisfying occupational role in society.
3. In higher classes some type of formal occupational preparation must be a part of every educational experience. No one should be allowed to leave the educational system without a framework for exploring, establishing or maintaining himself in the world of work.
4. In order to make vocationalization of secondary education successful it is also necessary to bring some elements of non-formal education. For the same, the help of public as well as private sectors can be taken.
5. A number of vocational courses should be introduced for the drop-outs to enable them to be independent in seeking a job or by self-employment. These courses can be of short-term duration as well as long-term.
6. Vocationalized courses to be introduced at the secondary stage should have some relevance to the society, which the school is expected to serve.
7. Vocational courses should not be looked upon as 'extra' or 'co-curricular' in nature. They should be treated as optional subjects to be given in lieu of some academic subjects.
8. On the successful completion of the course, a boy or a girl should be given a certificate to that effect. It should not be made obligatory to finish the academic course in order to get the certificate in vocational courses.
9. Vocational aspect of work-experience programme should not be neglected.
10. There should be more emphasis on the practical aspect in these vocationalized courses. The knowledge aspect that can be labelled as 'nice to know' need not be introduced.

11. In view of the importance of vocational guidance in the context of vocationalization of secondary education it is extremely essential to start a comprehensive programme of vocational guidance in our schools. If it is not possible for an individual school to maintain a good guidance unit, a group of five to ten schools in the same vicinity and probably with the same medium of instruction should come together and establish a good guidance unit that will serve the needs of their pupils.
12. If it is not possible for individual schools to conduct vocational courses independently, the schools from the same area should act as feeders to a common vocational school that would serve the student community.

Some Problems for Further Research

The subject vocational education has many facets and it can be studied in many dimensions with depth. A deep and thorough study should be undertaken and the subject should be attacked from different angles. The following are some of the areas that the present research worker has come across while working for his own research study :

1. Analysis of country's emerging needs for qualified personnel and devising tools and techniques of employment market surveys.
2. Building of favourable public attitude and realization of the needs to switch over to early vocationalization.
3. Preparing teachers for vocationalized courses.
4. Surveys of growth and development of vocational education in different countries.
5. Financial implications of vocational education programme.
6. Evaluation of vocational education programme.



A Critical Study of Centre-State Relationship in Education from 1871 to 1973 in India

M. L. SACHDEVA

THERE IS AN inconvenient feeling that the Centre has been assuming more functions and powers than those that fall within the meaning and the spirit of the constitutional provisions. The research probe may prove or disprove this feeling. Constitutionally perhaps it is not obligatory for the Centre to provide education, which is a state subject. But Article 45 is so perspective on account of wider interpretation of the word 'State' in the article, that Government of India has accepted it as an obligation to boost primary education, as sequel to this in various five-year plans, the Centre has been helping the states in matter of finance and guidance, research and promotion of new experiments in education at all levels. States on their part just implement the policies and programmes as warranted by the requirements of the conditions obtained in the states, in spite of this that education is a state subject. States do not have the requisite amount of enthusiasm, fervour and initiative as expected. They however do frame their individual and independent programme but always look toward the Centre for vetting these programmes and the financial assistance to implement these programmes

The attitude of the Centre, arrogating to itself the task of education, is clear from what Shri M. C Chagla said to the state education ministers in their conference held in New Delhi in April 1964 :

We must set up institutions in the centrally sponsored sector which will act as models. If I may change the phrase, I would like to have all over the country 'peaks of excellence' which would be a sort of beacon-lights to all the other insitutions fired with ambition to attain the same high position. I would also like to have in the centrally-sponsored sector certain aspects of education which are vital to the very structure of education.

This type of thinking, by and large, is shared by those who advocate centralization in the interests of having uniformity of policy for the entire country. Such an attitude is thought-provoking and has prompted this

* Thesis submitted to Panjab University (1977)

researcher to undertake a study of the pros and cons of the fundamentals of the Centre-State relationship.

The Study

In view of the situations stated above the Kothari Education Commission (1964-66) made an attempt to lay down a compromise formula. It did not favour fragmenting education and putting one part in the Concurrent and the other in the State List. It desired that education under any circumstances be treated as a whole, and upheld the position given to education in the constitution, which according to them, is probably the best because it provides for a central leadership of a stimulating but non-coercive character. Referring to the efforts made to include education in the Concurrent List, they said that this may lead to undesirable centralization. They support the desire of states for less interference in their educational matters and, however, think that the greatest need is elasticity and freedom to conduct experiment in education. The investigator, therefore, finds plenty of scope for doing some original thinking with a view to evolving a workable Centre-State partnership in education.

Objectives

1. To study the Centre-State relationship in education from 1871 to 1973.
2. To find out whether the Centre is assuming more powers and functions than actually provided to it from time to time.
3. To find out how far the states have fully utilized their autonomous status in the educational matters.

Hypotheses

1. The Centre has always played a predominant role in spite of policy decisions contrary to it, before the independence of India and despite the constitutional provisions in the free India.
2. States more or less have been the satellites of the Centre because of their eagerness to get more and more finances.

Methodology

The historical method of research was followed. Both primary and secondary sources of data were used.

Discussion and Summary of Findings

1. *Introductions*

Prior to 1813, the country had a system of education of great antiquity both among the Hindus and the Muhammadans. This system was in each case linked up with their religious institutions. These institutions were supported by private philanthropy or by state grants in cash or kind. The State, however, did not exercise any control.

During the period of the East India Company's rule, up to 1813, promotion of education was not accepted as one of the obligations of the company. Like all commercial companies, East India Company's object was only pecuniary gain by trade and it had no concern whatsoever with the education of the natives. However, some random attempts were made by the officers of the company and they succeeded in receiving £ 100 as an annual endowment for schooling. This was the only interest shown by the directors of the company.

The enactment of 1813 made education a partial responsibility of the State. Though the presidencies and provinces had considerable freedom in educational matters, yet the Court of Directors and the Governor-General enunciated the educational policy for whole of the country and had full financial control of the system. The Charter Act of 1833 created a highly centralized form of administration in the country under which education, like any other subject, became a responsibility of the Government of India.

With the passing of the Charter Act of the company in 1853, the education was given a vital importance. The company's government thought it to regulate, coordinate and systematize the various trends of educational development in India and thereby lay down the policy which the Government of India was to follow in future. As a result of this decision, the Despatch of 1854 was issued in which the education of the whole population of India was definitely accepted as a State duty.

2. *Beginning of Decentralization in 1871 and its Aftermath*

Lord Mayo's Resolution of 14 December 1870 introduced certain changes. The provinces had the freedom to work out the details of educational administration without reference to the Centre.

But the hopes aroused by the decentralization for a better deal to education were not fulfilled. The main reason was the revenues assigned to the states which were very slender and the responsibility very heavy. In 1897, the Indian Education Service was created and placed in charge of all the important posts in the provincial education department. In 1902, the

office of the Director-General of Education was created in India. The Director had general control of education on the lines directed by the Centre. These two additions in the sphere of education were used for controlling the powers of the states.

In short, the period 1871 to 1902 termed as an era of decentralization in education was much interfered with by the Central Government either through suggestions or by directions.

3. *The Era of Increased Centralization*

The keen interest shown by the Centre in education during the triennium (1902-1905) was unparalleled in the annals of educational history of British India. The Government of India appointed the Indian Universities Commission (1902) and made an assignment of 40 lakhs annually for universities and colleges, 2½ lakhs for European education and 35 lakhs for primary education, 2½ lakhs for certain new departments in education and other large grants for agricultural and chiefs' colleges. Such huge grants by the Central Government were unheard of before and they enabled the education of the country to expand and improve in an unprecedented manner.

The Government resolution on the Indian Educational Policy issued in 1904 was another milestone in the educational history of India. It covered all the fields of education from primary to university education. In the same year, the Indian Universities Act was passed. It brought many changes in the university education. These reforms were always synonymous with increased official control. Therefore, this period was spent in trying to revive the lost position of the Centre and to give the system energy and drive. The rigidity of the Centre in matters educational, made the states silent on the ground that their arguments for more autonomy were outdated and unconvincing. The centralization in education remained in force partly in the name of reforms and financial assistance and partly for improving the quality of education.

4. *Changing Trends in Centralization*

The educational decisions taken and the policies formulated during the triennium (1902-1905) continued to hold good with minor changes from 1905 to 1919, when under the Indian Act of 1919 education became a transferred subject under the charge of a popular minister. In fact, during this period, the implementation of the Centre's decisions and policies was done with greater zeal and the provincial departments of education conti-

nued to work out the broad lines of the Policy laid down by the Centre during the triennium.

In 1910, education department was separated from the home department of the Central Government and became a full-fledged department. A separate secretary was appointed. A bureau of education was started at the Centre for the purpose of publishing occasional reports on educational matters. With the help of these agencies the Central Government considered the question of general policy, coordinated the work in various provinces and exercised considerable supervisory power in essential matters.

Once again, decentralization was visible. The post of Director-General of Education in India was absorbed into new department which was assigned the duties to coordinate the educational policies of both the Centre and the States.

Lord Butler, the first Member of Education, reposed confidence in the policy of decentralization. He assured the cooperation and help of the Central Government in the spread of education. Thus, the actual administration in education rested with the state governments.

In April 1915, an officer was attached to the education department of the Government of India for keeping in touch with the States without interfering with their discretion. This led to the Centre for decreasing the strength of its education department, but at the same time, a post of Education Commissioner was created along with the department for discussing common problems and pooling experiences. The department at the Centre became the venue of mutual discussions.

In 1916, more powers were given to the states. The states in real sense were enjoying the status of the units of federation. The Central Government was only to advise, coordinate and regulate the general policy in education. However, in financial matters states were not still independent. They depended on the Centre for grants. The fiscal needs provided a chance to the Government of India to issue directives, number of circulars defining general policy of the government. Except for performing general functions of the above-mentioned nature, the Central Government had no desire to interfere in the educational sphere of the provinces. The control of the Central Government was lessened more, on the historic announcement of 20 August 1917, by which it was proposed to transfer the authority to the States.

Therefore, the period of 15 years from 1905 to 1919 witnessed many changing trends in the role of Central Government. Sometimes extreme centralization, sometimes restricted decentralization and at other times large

decentralization combined with limited but essential Central control could be witnessed

5 *Education under Dyarchy, Centre vis-a-vis State*

The Government of India Act 1919 established a dyarchic system of government. Under this system, education became a transferred subject. It was placed under the control of Indian ministers responsible to a legislature with a large elected majority. The Central Government kept the affairs of the Banaras Hindu University, Aligarh Muslim University, Calcutta University and of such other universities as may be declared to be of all India importance by the Governor-General in Council. The Central Government also looked after the Colleges for Indian Chiefs and institutions maintained by the Governor-General in Council for the children of His Majesty's forces. These provisions of the Act of 1919 created a queer position by treating education partly all India, partly reserved, partly transferred without limitations.

As a corollary to this, therefore, the Central control over education had to be reduced to the minimum, if not eliminated altogether. Consequently, there came about what the Hartog Committee called a 'divorce' between education and the Government of India. The Central Government's interest in education disappeared almost completely after 1921.

This divorce of the Government of India from education was welcomed in some quarters in the provinces and there was a manifestation of strong provincial feelings. It did not, however, take the provincial governments long to realize that this was a mistake and something had to be done to create a national agency and machinery for the development of education. Consequently, the Central Advisory Board of Education was established in 1921 to advise the Centre and the States on educational matters.

Henceforth, the States, through the popular ministers took keen interest in the educational affairs of the States. The provinces wanted to further education but on account of financial hardships, their progress was checked. Though education was a transferred subject, yet finance was a reserved subject under the control of English councillors. No scheme of education could be implemented without the cooperation of the councillors. They were reluctant to give the required amount of money to the provinces under Indian ministers.

Dyarchy also created an ill-feeling between Indian ministers of education and IES officers, whose services were controlled by the secretary of state for India. These officers regarded themselves as more experienced than the

Indian ministers and, therefore, they attached no importance to their educational schemes and did not carry out their instructions.

This position was anomalous and led to a good deal of animus on both sides. Thus, the hopes of responsible governments in the states seemed to be declining. To save this position Hartog Committee suggested that the divorce of the Government of India from education was unfortunate and it added that education was essentially a national service, thus the Government of India should serve as a centre of educational information for the whole of India and it should also coordinate the educational experiences of different provinces.

This trend of coordination was checked on account of the financial stringency. The Central Government suffered too, and its education department lost its independent existence.

6. *Education under Provincial Autonomy : Renewed Interest of the Centre*

The provincial autonomy gave administrative as well as financial powers to the popular ministers and, therefore, larger funds could be assigned to education without any administrative hindrance. Helpful change was also noticed in the attitude of the Central Government towards education of the states. The revival of Centre's interest in education did not hamper the progress and development of the states in the field of education. This position continued right up to 1940 and thereafter it again deteriorated owing to two reasons. First, the popular ministries resigned, secondly, the Second World War broke out. Between 1940 and 1945, the Central Government got ample chances to influence the educational affairs of the provinces and the provincial autonomy came to a standstill.

In 1945, the popular Ministry came to its saddle, then one of the far-reaching developments of the 'provincial autonomy' was the growth of a 'working partnership' between the Central and State Governments in the nation task of educational reconstruction. For executing the national plan and establishing liaison between the Centre and the States, the Education Commissioner was appointed who prepared a comprehensive survey of educational needs of Centrally administered areas and assisted the provincial governments. Thereafter a strong Education Department at the Centre was set up for effective carrying out of educational policies.

With the reconstitution of the Department of Education as a separate entity, the Central Government was called upon to undertake various activities in the different fields of education such as primary, secondary, university, technical, etc. The All India Council for Technical Education and the

University Grants Committee were set up in 1945. By these activities between 1935 and 1947, the role of Central Government in education was again activitized and the several functions which had fallen into disuse between 1923 to 1935 were resumed. The idea of reviving the Central Education Services also came in for implementation.

7. Constitutional Obligations of the Centre

Prima facie education is a State subject. Entry 11 of the list II of the Seventh Schedule to the Constitution lays down that education including universities subject to the provisions of entries 63, 64, 65 and 66 of the list first and 25th of the list III should be a State subject.

Constitutionally perhaps it is not obligatory for the Centre to provide education, which is a State subject. But article 45 is so pervasive on account of wider interpretation of the word 'State' in the article, that the Government of India has accepted it as an obligation to boost primary education. The responsibility of the Centre to equalize educational opportunities between different areas or different sections of society had also to be recognized and duly provided for. Then the responsibility of the Centre to safeguard the cultural interests of the minorities and to see that they have adequate facilities to receive at least primary education through their mother tongue, as well as the special responsibility of the Centre to develop the national language had also to be provided for. The need for a controlled development of higher education made it necessary to authorize the Centre to coordinate and determine standards in universities and scientific, technical or research institution and, on account of such factors as high cost, difficulty of securing suitable personnel, the need to obtain foreign assistance, scientific research, technical education and the higher type of professional and vocational education had also to be assigned to the Union Government. The Constitution also enables the Centre to give grant-in-aid to the states to develop their educational programmes. Certain educational problems which have a large significance at present such as securing of foreign assistance for education, training of Indian abroad, relationship with international organization like Unesco, participation in bilateral or multi-lateral programmes of educational assistance like the Commonwealth Cooperation Scheme or the USAID had also remained with the Centre. A very powerful means of Central control was created when 'economic and social planning' was made a concurrent responsibility.

These constitutional obligations of the Centre are so large that they confine the authority of the states in education. The Centre has now

obtained a large authority over education than it had under the Government of India Acts of 1919 or 1935.

8. *Revival of Centre's Keen Interest in Education (1947-1951)*

During 1947-1951 education was given high priority in the national budget and an all India conference was convened to give concrete shape to the future plan of education. As a result of this conference, primary, secondary and higher education was promoted and developed. The Central Government appointed the Indian University Commission in 1948 which submitted its report in 1949. On the recommendations of the Commission, University Grants Commission was established. The Centre also took the financial responsibility of the states for meeting some of the financial needs of the states for education. Besides these functions, the Central Government assumed the responsibility of coordination, maintaining of standards, educational planning and providing advice on the different aspects of education.

The commencement of the Constitution abolished the Indian Education Service which was considered an instrument of Centre's control over the educational affairs of the states. With the abolition of this institution, the indirect influence of the Centre came to an end. The Constitution of free India has not deviated from the original pattern and education at all stages with two important qualifications still remained a State subject.

These qualifications are in respect of university and technical education and Constitution has also placed some obligations on the Central Government for the promotion of education. Thus, the interest of the Central Government has been revived in education and has gone forward for undertaking more and more responsibilities in the field of education of the country

9. *Centre's Role in Five-Year Plans (1951-1973)*

The First Five Year Plan was a colossal task and required joint efforts of the Centre and the States. The Centre was deeply concerned about the educational situation of the country and was anxious to initiate, in cooperation with state governments, the expansion and reconstruction of education.

In 1952, on the recommendations of the Central Advisory Board of Education, the Secondary Education Commission was appointed to imple-

ment the national schemes of education in the field of secondary education. The Commission said that "the Central Government could not divest itself of the responsibility to improve the standards of secondary education and relate it intelligently to the larger problems of national life". The Commission, thus, imposed upon the Centre to take responsibility of the secondary education for preparing young men for the various vocations. There was one more reason for undertaking the responsibility in the field of secondary education, that the Centre was directly charged with the responsibility of maintaining proper standards in higher education. This cannot be done, unless careful consideration was given to the level of efficiency attained at the secondary stage.

The Secondary Education Commission was followed by the Central Bureau of Textbooks Research at the Central Institute of Education, with the object of assisting in the improvement of school textbooks, a Bureau of Education and Vocational Guidance was set up for meeting the different needs of the secondary school-goers, a Central Coordination Committee was formed for drawing up integrated syllabus and the All India Council for Secondary Education was established to review the progress of secondary education throughout the country.

In the field of university education, the Government of India played a predominant role by amending the Act of Incorporation of the Central Universities to make the Viswa Bharti as Central University. The Centre also amended the Aligarh Muslim University, Banaras Hindu University and Delhi University Acts for providing them some facilities regarding university education. The University Grants Commission was set up in order to promote and coordinate university education and, for the determination and maintenance of standards of teaching, examination and research in universities.

In this plan period, a new technique of planning was adopted. In it more and more decisions tend to be taken at the Centre than in the states. The decision on nation targets, the fixation of priorities, the allocation of resources to different sectors of development or even to different programmes within the same sector of development, the allocation of resources to different states, the fixation of Central assistance to each state, these and such other problems were mainly decided by the Planning Commission and all these effect educational policies so largely that a State Government was very often required, not to prepare an educational plan, but to fill in the blanks or details of structure whose broad irrevocable outline had already been decided elsewhere.

In the Second Plan, the interest of the Central Government, in all the fields of education was increased. On the recommendation of the All India Survey of Primary Education, the government started programmes of compulsory education in the country. In the field of secondary education, the role of the Centre was mainly advisory. The role of the Central Government in higher education and university education was intricate and complex as university education was a State subject.

In the Third Five-Year Plan, the nation envisaged a national system of education which required the cohesion of the Centre and State governments. This partnership was even more necessary to defeat the forces inimical to national unity. This is why the Education Commission (1944-66) desired Centre-State partnership in education. In the Third Plan, the Union Education Minister who in 1961 favoured education as a joint venture, changed his views in 1961 and demanded that education should be brought on Concurrent List, and the Indian Education Service should be revived.

In accordance with the views of the Union Education Minister, efforts were made in 1963 for constituting an All India Educational Service. All the states except Maharashtra agreed to the formation of the service. Though this proposal could not get through yet the efforts were never abandoned. Once again in 1963, efforts were made to make higher education a Concurrent Subject. A committee was appointed to this effect under the chairmanship of Shri P.N. Saprú. This committee recommended that the university and higher education should be transferred from the State List to the Concurrent List. The recommendations were referred to all the state governments for their comments. In the same way, various proposals were received by the Education Commission to include some other sectors of education, e.g. technical education in the Concurrent List. However, the Education Commission was not in favour of 'fragmenting education and putting one part in the Concurrent and other in the State List, education should under any circumstances, be treated as whole'.

The Fourth Five Year Plan could not be started in 1966. There was plan holiday for three years. By no means, the interest of the Central Government during this triennium decreased rather it went on spurt. The Central Government passed the resolution on national policy in education. The policy expressed the determination of the Centre to give a definite direction to the future development of education. The state governments cooperated in this national task of reconstruction of nation through education. National policy became the joint concern of the Centre and the

States This distribution of responsibility between the Centre and the State governments was generally worked well.

The Fourth Plan was started from April 1969 for the expansion of primary education, qualitative improvement of higher education, orientation of technical and science education. This great task made it imperative that a national pattern of education should be evolved and implemented with the help of all the agencies who wanted radical changes in the outlook of the nation through education.

In this pace of national task some of the state governments lagged behind because of slender finances and of unconvincing attitude towards the Centre. The states with opposition party governments challenged the authority under which the Centre was taking interest in education which was a State Subject. Unmindful of this criticism the Central Government showed keen interest in the education and performed all sorts of activities concerning all the fields of education. The Fourth Plan made the Centre a great pulsating Centre of enormous and varied educational activities. The present policy of the Centre for assisting the state sector was unparalleled in the history of education.

The Central Government evolved a uniform pattern of education, commonly called 10+2+3 system for introducing throughout the country. In the meantime, the urge of national integration forced the individuals, organizations and some states to adopt this uniform system of education. Many organizations like United Schools Organization of India were even demanding time and again that education should be placed on Concurrent List, if not on the Union List. These and similar views taken together make out a case for education being classified as a Central or at least as a Concurrent subject.

10. Conclusion

Broadly speaking, it may be concluded that the Central Government has consolidated its position so far as its educational role is concerned. Primarily, as an advisory and coordinating authority, it has become an equal partner. Whenever the constitutional provisions in education have no sanction for some of the Centre's activities, it can easily take recourse to its other privileges, for example, social and economic planning being the prerogatives of the Government of India. They take certain measures under

this for educational projects. Similarly, under the plea of equality of educational opportunity, the Centre has been taking large measures. The Central Government has been formulating the national education plans as well as appointing Education Commissions on various aspects of education. Educationally situated as India, the trend is towards increasing activities of the Centre and it is expected at any moment that education may be placed on Concurrent List by amending the Constitution.



A Study of the Academic Performance of the Farmers' Functional Literacy Programme Participants in Relation to Some Social-Psychological Factors

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THE FARMERS' Functional Literacy Programme (FFLP), since its inception in India in 1967-68, was evaluated from time to time. Some of these studies, which adopted *ex post facto* designs, chiefly concerned themselves with the progress made by the FFLP participants in respect of literacy, knowledge of improved methods of cultivation and adoption of improved agricultural practices. But, by and large, these studies did not examine the relationship between the progress of participants in literacy, knowledge of improved methods of cultivation and level of adoption of improved agricultural practices as related to an exhaustive number of social-psychological factors. Recognizing this gap in the research pertaining to the FFLP, the investigator took up the problem for study. In its specific terms, this research study was undertaken to examine the relationship between the academic performance of the FFLP participants of the 1974-75 year batch in Andhra Pradesh and some selected social-psychological factors relating to them. Due to various constraints, the adoption of improved agricultural practices was not included in the study as it becomes clear from the title.

Design of the Study

The variables included under the academic performance of the participants were treated as dependent, while the factors pertaining to the social-psychological dimension were treated as independent. Here, though the relationship between the dependent and the independent categories was viewed as the time-order one, it was not presumed that they were necessarily consequences and the antecedents in the time-order sequence. In studying

*Thesis submitted to Sri Venkateswara University (1977)

the said relationship, the indicators of the academic performance of the participants were the following variables, which were considered individually as well as in their possible combinations : performance in reading, comprehension, writing (dictation), transcription, arithmetic, literacy, etc.

The social-psychological factors selected for the purpose were : (i) Personal and family factors—age, sex, caste, occupation, marital status, number of children, family type, family size, per capita income, and family literacy index; (ii) Mass-media exposure factors—total newspaper-reading and radio listening in a week, radio listening pertaining to agricultural and non-agricultural programmes in a week, movies seen pertaining to agricultural and non-agricultural programmes in the last twelve months; (iii) External contact factors—social participation, urban contacts, urban occupational pull and contact with agricultural extension officers; (iv) Attitudinal factors—conservatism-liberalism, fatalism-scientism, authoritarianism and non-authoritarianism, N-achievement, aspirations in reading, writing and arithmetic, and in the knowledge of improved methods of cultivation, attitudes towards adult literacy and improved methods of cultivation.

Main Objectives

1. To find out the relationship between the social-psychological factors pertaining to the FFLP participants and their academic performance.
2. To know whether differences in the social-psychological nature of the participants account for any significant differences in their performance in literacy and their knowledge of improved methods of cultivation.
3. To identify the social-psychological factors that predict academic performance of the participants.
4. To study the differential contribution of the social-psychological factors in predicting the academic performance of the participants singly and jointly.
5. To identify the social-psychological factors that turn out to be the common and significant predictors of the academic performance of the participants.
6. To find out whether a particular social-psychological factor predicts the academic performance of the FFLP participants more than any one of the remaining social-psychological factors.

Obviously based on the objectives stated above, appropriate null hypotheses were formulated for empirical validation.

Tools Developed

To study the said relationship 13 tools were constructed in the vernacular, namely, Telugu by trying them out on a random sample of 370 FFLP participants of the 1974-75 year batch in Andhra Pradesh. Here, in a design of a stratified three-stage random sampling, the total of the Third Stage Units (TSU) was kept to be 378 to facilitate the easy use of the item-analysis chart developed by Harper, Gupta and Sangal (1962) for the tests and scales construction.

Sampling Design

To select the final sample for the study a stratified three-stage random sampling design with uniform sub-sampling at each stage was adopted. As such, first, the West Godavari District Project (Ganapavaram Block) from the two Projects in the Circars - the Chittoor District Project (Chandiaguri, Sri Kalahasti and Thottambedu Blocks) from the two Projects in the Rayalaseema, and the Mahaboobnagar (Kalwakurthy Block) and Nalgonda (Suryapet Block) District Project from the four Projects in the Telangana were selected randomly. At the second stage, 25 FFL centres from each project were selected randomly. As such, the total number of literacy centres selected randomly was 100. At the third stage, five participants from each of the 100 literacy centres were chosen randomly so as to have a total sample of 500 FFLP participants.

Analysis of Data

The data were analysed with calculator as well as on computer. Obviously, a coding system was developed before the data were punched. Also, wherever it was necessary, the raw scores were transformed into Z scores (which had a mean of 50 and a standard deviation 10) and added before punching the data on IBM cards. The chi-square test of independence and the zero-order correlation (r) techniques were used to examine the association between the social-psychological factors and the academic performance areas. Critical Ratios (CRs) were used to find out the significant differences between means pertaining to the academic performances as distributed according to the levels (high, middle and low) of the social-psychological factors. Multiple correlation and multiple regression analysis was done to identify the significant predictors (social-psychological factors) of the academic performance areas of the participants. 'Analysis of variance for regression' technique was used to test the multiple R's significance.

Major Findings

1. The social-psychological factors, total newspaper-reading, radio listening pertaining to agricultural programmes, total number of movies seen pertaining to agricultural programmes, social participation, urban occupational pull, contact with agricultural extension officers, n-achievement, aspirations in reading, writing, arithmetic and knowledge about improved methods of cultivation, attitudes towards adult literacy and improved methods of cultivation, all pertaining to the FFLP participants, were found to be positively and significantly related to their performance in literacy.

2. Conservatism, fatalism and authoritarianism of the participants were negatively and significantly associated with their performance in literacy.

3. The participants' age, sex, caste, primary occupation, marital status, family type, number of children, family size, per capita income, family literacy index, total radio listening, radio listening pertaining to non-agricultural programmes, movies seen pertaining to non-agricultural programmes and urban contacts were not significantly related to their performance in literacy.

4. Those, who read newspaper at least once a week, had a higher mean literacy performance than those who did not read newspaper.

5. Those who had urban occupational pull on their part performed better in literacy than those who lacked it.

6. As conservative notions on the part of the participants increased, there was a tendency for a decrease in their literacy performance.

7. Participants' contacts with agricultural extension officers, their n-achievement, aspirations in reading and arithmetic and their attitudes towards adult literacy turned out to be the significant predictors of their performance in literacy.

8. The social-psychological factors, sex, family size, primary occupation, total radio listening, social participation, contact with agricultural extension officers, n-achievement, attitudes towards adult literacy and improved methods of cultivation, all pertaining to the participants, were positively and significantly related to their knowledge of improved methods of cultivation.

9. Conservatism, fatalism and authoritarianism of the participants were negatively and significantly associated with their knowledge of improved methods of cultivation.

10. Participants' age, caste, marital status, number of children, per capita income, family literacy index, total newspaper-reading, radio listening pertaining to agricultural programmes, radio listening pertaining to non-

agricultural programmes, total number of movies seen, movies seen pertaining to agricultural programmes, movies seen pertaining to non-agricultural programmes, urban contacts and aspirations in reading, writing, arithmetic and knowledge of improved methods of cultivation were not significantly related to their knowledge of improved methods of cultivation

11. The participants, who had higher level of contact with agricultural extension officers, had acquired more knowledge about improved methods of cultivation.

12. Males acquired more knowledge about improved methods of cultivation than females.

13. The participants with higher fatalistic tendencies on their part had acquired less knowledge about improved methods of cultivation.

14. The higher the n-achievement, the attitudes towards adult literacy and the attitudes towards improved methods of cultivation on the part of the participants, the more was the knowledge acquired about improved methods of cultivation by them.

15. Cultivators acquired more knowledge about improved methods of cultivation than agricultural labourers. Agricultural labourers acquired more knowledge about improved methods of cultivation than the group comprising others (dhobies, labourers, women doing household works, etc.)

16. Participants' family size, n-achievement, attitudes towards adult literacy and improved methods of cultivation turned out to be the significant predictors of their knowledge of improved methods of cultivation.

17. N-achievement of the FFLP participants was positively and significantly related to their performance in all the performance areas.

18. Attitudes of the participants towards adult literacy were positively and significantly associated with their performance in all areas, except with their performance in transcription.

19. Attitudes of the participants towards improved methods of cultivation were positively and significantly related to their performance in all areas, except their performance in writing.

20. Aspirations of participants in writing and arithmetic were positively and significantly related to all performance areas, except their knowledge of improved methods of cultivation

21. Aspirations of the participants in reading and knowledge of improved methods of cultivation were positively and significantly related to their performance in reading, reading comprehension, arithmetic, literacy and their total academic performance.

22. Conservatism, fatalism and authoritarianism of the participants

were negatively and significantly associated with their performance in reading, arithmetic, literacy and their knowledge of improved methods of cultivation and total academic performance.

23. The contact of the participants with agricultural extension officers was positively and significantly associated with their performance in all performance areas, except their performance in writing.

24. Social participation of the participants is positively and significantly related to their performance in reading, reading comprehension, arithmetic, literacy and their knowledge of improved methods of cultivation and total academic performance. But, this factor turned out to be a significant predictor of the performance only in reading comprehension.

25. Urban contacts of the participants were positively and significantly associated with their performance only in reading comprehension and transcription. As a factor, urban contacts turned out to be a significant predictor of transcription.

26. Urban occupational pull of the participants was positively and significantly related to their performance in reading, reading comprehension, arithmetic and literacy and their total academic performance. But this factor was not a significant predictor of any performance area.

27. Total newspaper-reading of the participants was positively and significantly related to their performance in reading, reading comprehension, arithmetic and literacy and their total academic performance. But this factor was not a significant predictor of any performance area.

28. Total radio listening of the participants was positively and significantly related to their performance in reading, writing, arithmetic, and their knowledge of improved methods of cultivation. This factor was a significant predictor of the performance in writing.

29. Surprisingly enough, radio listening of the participants relating to agricultural programmes was not significantly related to their knowledge of improved methods of cultivation; it was positively and significantly associated with performance in reading, reading comprehension, arithmetic and literacy and also total academic performance. This factor was also not a significant predictor of any performance area.

30. Both radio listening and movies seen pertaining to non-agricultural programmes by the participants were positively and significantly related to their performance only in reading and arithmetic. None of these turned to be a significant predictor of any performance area.

31. Movies pertaining to agricultural programmes seen by the parti-

cipants were positively and significantly related to their performance in reading comprehension, transcription, and literacy and their total academic performance. Also, this factor was not a significant predictor of any performance area

32. The age, caste, number of children, family size, per capita income and family literacy index, all belonging to the participants, were not related to their performance in reading, literacy and their total academic performance. Age was positively and significantly related to the performance in transcription and arithmetic. Caste was positively and significantly related to the performance in reading comprehension, transcription and literacy. The factor, number of children, was not related to any performance area. Family size was negatively and significantly related to the performance in transcription, while it was positively and significantly related to knowledge of improved methods of cultivation. Per capita income was positively and significantly related only to performance in writing and arithmetic. Family literacy index was positively and significantly related only to performance in arithmetic.

33. Age, caste and family size turned out to be significant predictors of performance in arithmetic, reading comprehension and knowledge of improved methods of cultivation, respectively. Per capita income turned out to be a significant predictor of performance in writing and transcription.

34. The total percentages of variance explained in the performance in reading, reading comprehension, writing, transcription and arithmetic were rather low. The percentages of variance vary from 8.18 to 16.89. The total percentage of variance explained in total academic performance of the participants by the five significant predictors, contact with agricultural extension officers, n-achievement, aspirations in reading, aspirations in arithmetic and attitudes towards adult literacy was 25.60.



Adoption and Discontinuation of Innovations in the Preparation of Secondary School Teachers in India

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THE PRESENT STUDY was undertaken with the following objectives :

1. To find out to what extent innovations recommended by different commissions and committees have been adopted by the secondary school teachers' training institutions in India.
2. To find out how far these adopted innovations have been maintained by these institutions.
3. To find out whether institutions under three different types of control, viz. private management, government management and universities differ with respect to adoption and maintenance of innovations.
4. To study how decisions for the adoption of innovations are made in these training institutions.
5. To suggest measures how training institutions may be made more prone to the adoption of innovations.

Method and Procedure

The present study employed description survey method of research. The sample was drawn from the secondary teachers training institutions from 17 states and union territories of India. The heads of the institutions, teacher-educators and student-teachers were the respondents. The questionnaire and interviews were used for data collection from the respondents. Subjects prescribed by various universities in the syllabi for student-teachers was also analysed. Analyses of the collected data were done in accordance with the objectives of the study.

Sample

In the present study four samples were drawn for the fulfilment of different objectives of the study. All the secondary teachers training institutions in India were approached for the data through the questionnaire for studying innovations adopted and discontinued by them. Out of them only 209 institutions responded and were finally included in the study. Ten

*Thesis submitted to M. S. University, Baroda (1977)

per cent training institutions from each of the four educational regions (vide NCERT, *Plan and Programme, 1963*) were selected for visit purposes. The second sample consisted of 200 teacher-educators from these 40 training institutions for studying decision-making process for the adoption of innovations. The third sample comprised 200 student-teachers selected from the 40 institutions. The fourth sample consisted of the syllabi of 50 universities prescribed for the bachelor of education and bachelor of teaching courses. The purpose of the sample was to study subjects accepted by the Indian universities for student-teachers.

Tools Used

A questionnaire was developed by the investigator for collecting data with regard to the adoption and discontinuation of innovations by the training institutions. For the development of the questionnaire recommendations of education commissions and committees were studied and analysed. An innovative idea occurring for the first time was selected and subsequent repetitions of the same idea were left out. These recommendations were classified into ten divisions : admission, foundations course, laboratory phase, practice teaching, methods of teaching, non-instructional activities, evaluation, teacher-educators, in-service education, and organization and administration. All these recommendations were transformed into positive statement forms.

In order to conduct interview purposefully with the teacher-educators, an interview guide was developed. The chief purpose of the interview was to collect data regarding the decision-making process for the adoption of innovations. It was, therefore, considered to base it on Rogers' five-stage postulates for adoption process : awareness, interest, evaluation, trial, and adoption.

Results and Conclusions

Adoption of Innovations

Only a limited percentage of secondary teachers training institutions (from 6.6 to 11.4 per cent) have adopted objective criteria and standardized procedures for admission. Majority of the training institutions finalize admission on global impression gathered at interviews (89.4 per cent) and on consideration of entire academic records of candidates (68.4 per cent).

2 Majority of secondary teachers' training institutions (85.6 per cent) prescribe flexible methods of teaching for student-teachers. About half of the training institutions (ranging from 48.5 to 66.9 per cent) acquaint their

student-teachers with social, political, religious and technological forces operating on human life. Educational psychology, general principles of education and methods of teaching school subjects have been prescribed by universities to cater to the needs of divergent student population. New courses like psychometrics (2 per cent), programme learning (4 per cent), action research (2 per cent), experimental education (4 per cent) and yoga education (2 per cent) have found place in the teacher education programmes.

3. Most of the training institutions (94.2 per cent) expose student-teachers to demonstration lessons before sending them to actual classroom. Fewer than half of the training institutions (48.3 per cent) included in the sample have demonstration schools. Fewer than one-third of the institutions in the sample (20.5 per cent) start student teaching with small groups of pupils.

4. More than two-thirds (78.4 per cent) training institutions provide sufficient time for the practice teaching and an equal number of institutions (78.4 per cent) have provision for good practising schools also. Practical activities like conducting seminars, tutorial classes, maintaining cumulative records have been practised by fewer than one-third (ranging from 11.0 to 22.9 per cent) institutions in the sample. Nearly two-thirds of the training institutions (64.5 per cent) in the sample have adopted system of block practice teaching. More than half of the training institutions (60.7 per cent) involve practising school teachers for supervision work given by student-teachers.

5. More than half of the training institutions (ranging from 56.9 to 82.2 per cent) in the sample have adopted activity and group discussion method of teaching like seminar method, group discussion method, tutorial and assignment method, self-study and individual library work. About one-third of the institutions (ranging from 19.6 to 55.5 per cent) in the sample make use of technological instruments in the teaching.

6. Activities such as excursion, library work, social service, preparation of charts and models have been popularly adopted (ranging from 67.4 to 93.3 per cent) by training institutions in India. Activities like junior red-cross, scouting and guiding and first-aid have been adopted by fewer than one-third of the institutions (ranging from 4.3 to 31.1 per cent) included in the sample.

7. Majority of the institutions (85.1 per cent) give weightage to internal assessment. Fewer than one-tenth (8.6 per cent) have the system of internal assessment to the theory papers. Fewer than one-third of the institutions (17.7 to 28.2 per cent) involve teachers and headmasters of the practising schools for the evaluation of practice lessons given by student-teachers.

8. About two-thirds of the training institutions (67.4 per cent) have teacher-educators with second class masters' degree in education. Only a limited number of institutions (ranging from 5.7 to 11.0 per cent) have provision for professional growth of their teacher-educators.

9. Fewer than half of the training institutions in the sample (44.2 per cent) regularly organize in-service course for school teachers. Only about 15 per cent institutions try to keep in touch with their old students for their professional growth.

10. Financial facilities in terms of fee exemption, stipends and hostel accommodation have been provided to student-teachers by fewer than one-third of the training institutions (5.7 per cent) having supervisory control over practising schools.

Discontinuation of Innovations

1. Institutions which have adopted innovations have been able to maintain them. Discontinuation of innovations ranges from zero to eight institutions

2. Frequently discontinued innovations are those that involve heavy expenditure for which training institutions have to depend on other financing institutions or agencies.

Nature of Institutions and Adoption of Innovations

1. The adoption of innovations related to admission is not related to the nature of institutions. For the maintenance of these adopted innovations, government institutions show relatively higher potentiality whereas the university institutions show the lowest potentiality.

2. The adoption of innovations related to foundations course is not related to the nature of institutions. For maintaining these innovations also, there is no difference among the three types of institutions.

3. Adoption of innovations related to experience at laboratory phase is not related to the nature of institutions. And government, private and university institutions do not differ for maintaining them also.

4. Adoption of innovations related to practice teaching is not related to the nature of institutions. For the potentiality of their maintenance also, three types of institutions do not differ among themselves

5. Adoption of innovations related to methods of teaching is not related to the nature of institutions. But for maintaining these innovations, university institutions show lower potentiality to maintain them than any other type of institutions.

6. Adoption of only one innovation related to non-instructional acti-

vities is related to the nature of institutions. Adoption of remaining 13 innovations is not related to the nature of institutions. For maintaining these innovations, university institutions show lower potentiality than any other type of institutions.

7. Adoption of four innovations related to evaluation is related to the nature of institutions and university institutions show more adaptability than any other type of institutions. There is no difference between government and private institutions for their adoption. For maintaining these innovations also, university institutions show lowest potentiality whereas private government institutions do not show any difference.

8. Adoption of four innovations related to teacher-educators is related to the nature of institutions. Adoption of remaining 11 innovations in this area is not related to the nature of institutions. University institutions show higher adaptability for these four innovations which are related to the nature of institutions. For maintaining these innovations there is no difference among three types of institutions.

9. The adoption of five innovations related to in-service education is related to the nature of institutions. Adoption of remaining six innovations in this area is not related to the nature of institutions. Government institutions show superiority for the adoption of innovations related to in-service education. For maintaining these innovations also, government institutions show superiority over private and university institutions.

10. Adoption of three innovations related to organization and administration is related to the nature of institutions. Adoption of remaining innovations in this area is not related to the nature of institutions. Government institutions show greater potentiality for the adoption of innovations related to this area. There is no difference among three types of institutions for maintaining these innovations.

Process of Adoption of Innovations

1. Institutions which have teacher-educators exposed to foreign influences through visits, literature and other means of communications, have been able to adopt a large number of innovations. But such institutions are limited in India. Majority of institutions have remained uninnovative. Teacher-educators who have been exposed to various seminars and conferences in the country have also developed proneness to the adoption of innovations.

2. Decisions regarding the adoption of a large number of innovations have been made by external agencies without involving the actual practitioners. The result has been that innovations have been adopted in distorted

ted form.

3. Innovations adapted at the institutional level have been evaluated through discussions in staff meetings but those adopted at the governmental and university levels have not been so evaluated. Hence adoptions have generally accepted these innovations half-heartedly and with scepticism.

4. Teachers' training institutions in India have not developed experimental attitude towards new ideas, methods and practices. They either adopt or do not adopt them. They rarely test their work ability and usefulness at experimental level.

5. Majority of innovations have been adopted by teacher-educators in distorted forms because they have not been adopted on the basis of evaluation and experimental trial to suit the needs of institutions where they have been adopted.

6. A number of inhibiting forces exist in the training institutions for the adoption of innovations related to administrative and financial matters.

7. Deliberate efforts have to be made to create situations for augmenting the innovativeness of the secondary training institutions in India. □

Research Notes

School Climate and Reactions to Frustration

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INVESTIGATIONS into the nature and effect of school climate are comparatively few. The efforts of Ronald and Ronald (1976) have resulted in revealing conflicting and inconsistent results. It was suggested that the surrounding population should also be taken into consideration. But Amsol (1976) had emphasized the internal structure of personality make-up of the population constituting a school climate. Holland (1976) also concluded that the disturbing factors are much more effective than balancing ones in understanding school climate. Frustration, anxiety, stress and all other pathological factors have not been properly studied in this context. This study has been undertaken with the above-mentioned intent in view.

Researches in frustration surprisingly indicate that frustration can increase the individual's efforts to complete the task (Lawson 1965, Waterhouse and Irwin 1963). When this occurs, the frustration becomes a motivating agent in behaviour (Amsel 1958 and Penny 1960). The motivational level of the individual towards goal-attainment increases. However, some persons surrender to other tasks which compete for their attention. Perhaps, this increased level of motivation has led the theorists to formulate 'frustration aggression' hypothesis (Dollard *et al.* 1939). Aggressive habits are not premordial (Freud 1920) but are environment-oriented (Sears *et al.* 1957, Patterson *et al.* 1961 and Walters and Brown 1963). Since aggression reaction to frustration is environmental in origin, the reaction to frustration of students, living in different school climates, will definitely have inter-school variations. Thus, this study aims at studying the effects of various school climates on the reactions to frustration of students.

Hypothesis

Since, there is no study available, specifically related to this one, for explorative purposes a null hypothesis that there is no significant difference in the frustration reactions of highly satisfying and highly dissatisfying school climate students, is being stated.

Design of the Study

I. *Structure* : In this study the independent variable, school climate, is dichotomized into highly satisfying and highly dissatisfying school climates. The dependent variable is reactions to frustrations.

II. *Sample* : The technique of cluster sampling was adopted. Two colleges were selected out of six intermediate colleges of which one had highly satisfying school climate and the other highly dissatisfying school climate. The school climate was measured with the following two scales developed by the investigators on the basis of the observations made from the other scales (Dixit 1971 and Patel 1971), and their own observations and interviews with the students

- (i) *School Climate Scale* : It has ten dimensions, viz. authority orientation, administration and management, cooperative orientation, facilities, goal-orientation, impartial orientation, inter-personal relations, institutional satisfaction, liberal orientation and order orientation. The split-half reliability is $+ .77$.
- (ii) *Inter-personal Trust Scale* : Its split-half reliability and coefficient is $+ .69$.¹

These scales are based on phenomenological psychology. The composite scores of both the scales constitute school climate scores.

TABLE 1
MEAN VALUES OF SCHOOL CLIMATE SCORES (N=100)

<i>Colleges</i>	<i>Mean</i>	<i>SD</i>
Government Inter College	388.12	57.47
Government Girls Inter College	367.03	29.62
Adams Girls Inter College	401.00	49.30*
Ramsay Inter College	355.99	53.59
Almora Inter College	330.51	30.66
Arya Kanya Inter College	327.72	45.92*

*C.R.=10.87 (.01)

¹See appendix

From Table 1, it is obvious that (i) Adams Girls Inter College has the highest mean score, so, it has highly satisfying school climate. (ii) Arya Kanya Inter College has highly dissatisfying school climate, as it has the lowest mean score.

These two schools were selected for the study. Now, the universal set for drawing the sample was constituted of students of the age-group of 14+ of Class X of these two schools. Two samples (50 students from each) were drawn from the universal set on the principle of randomization. These were matched on age, achievement and socio-economic status.

After the selection of the sample, Sharma's (1975) school situations reactions to frustration test was administered to the subjects.

Discussion of Results

The data were categorized separately for highly satisfying school climate students (HSSCS) and highly dissatisfying school climate students (HDSCS) in the following spheres : (i) Direction of aggression, (ii) Types of reactions, (iii) Factors of frustration reactions, (iv) Group conformity rating, (v) Super-ego pattern.² Then, 't' analysis was done.

Direction of Aggression

Table 2 reveals that 50 per cent HSSCS show aggression directed towards environment, nearly 25 per cent HSSCS turn it upon themselves, while remaining 25 per cent try to gloss over the situation. Among the HDSCS these percentages are 48, 38, and 14. Extra-punitiveness seems to be an important characteristic. It is consistent with the findings of Pareek (1958) who found extra-punitive direction of aggression in majority.

TABLE 2
DIRECTION OF AGGRESSION (BY PERCENTAGE)

Categories	HSSCS, N=50		HDSCS, N=50		't'
	Mean	SD	Mean	SD	
E-A	50.36	7.11	48.10	11.00	1.26
I-A	24.65	14.00	35.21	11.38	4.14*
M-A	24.95	12.21	16.63	8.11	4.02*

*Significant at .01 level

According to the index, both HSSCS and HDSCS turn out to be adjusted personalities in the spheres of E-A, I-A and M-A, though HSSCS are more well adjusted. The HSSCS differ in their directions of aggression from that of HDSCS in I-A and M-A significantly but not in E-A.

²See appendix

Types of Reactions

Table 3 reveals that among HSSCS 16 per cent are blocked by frustration, 69 per cent attack others or themselves, while the remaining 15 per cent

TABLE 3
TYPES OF REACTIONS (BY PERCENTAGES)
HSSCS, N=50 HDSCS, N=50

<i>Categories</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>'r'</i>
O-D	16.18	8.00	68.00	30.37	11.67*
E-D	69.11	25.00	15.03	15.00	13.13*
N-P	14.70	9.2	16.95	6.30	1.42

* Significant at .01 level

suggest some solution to the problem. } But among HDSCS, 68 per cent come in O-D, 15 per cent in E-D and 17 per cent in N-P. According to the index the HSSCS are adjusted in the O-D category but not in E-D and N-P categories, while the HDSCS are not adjusted on even one of them.

The HDSCS very significantly differ from HSSCS in O-D and E-D. Ego defensive technique seems to be stronger in HSSCS. But in contrast the HDSCS use obstacle dominance type of reaction often. This may be due to the dominating obstacle of the low satisfying environment in which they live. Pareek (1959) has found that E-D type of reaction is mostly used which is true with HSSCS but not with HDSCS.

Factors of Frustration Reactions

It is clear from Table 4 that among HSSCS the incidence of directing blame, censure, etc. upon oneself is the highest and second to it is the factor E that is to turn blame, hostility, etc. against some person in the environment. But the HDSCS mostly point out the presence of frustrating obstacle insistently. The factor coming next to it is E. Shaw and Doris (1960) and Sharma and Sharma (1977) found that the highest used factor is E, while in this study it is the second highest.

The lowest mean values against I shows that such girls in all are very few who construed frustration as not frustration.

The two different climate students differ from each other in E, I and m.

Group Conformity Ratings

The findings about the types and directions of frustration HSSCS and HDSCS are further confirmed by Group Conformity Ratings (GCR). The mean of GCR for the age-group 14+ is 54.30, according to the index. Since a high score on GCR is a sign of good adjustment, Table 4 reveals that

TABLE 4
FACTORS OF FRUSTRATION REACTIONS (BY FREQUENCIES)
HSSCS, N=50 HDSCS, N=50

<i>Factors</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>'t'</i>
E'	2.40	.92	6.72	3.72	8.00**
E	4.40	1.25	4.40	2.00	—
e	1.44	.75	2.40	1.96	1.02
I'	1.00	.25	1.10	.45	2.00*
I	5.08	2.01	3.48	3.01	3.14**
i	1.96	1.01	1.72	.96	1.2
M'	2.90	1.05	2.40	1.01	2.5*
M	3.60	2.60	3.02	1.90	1.26
m	1.44	.75	3.00	1.20	7.8**

* Significant at .05 level

** Significant at .01 level

TABLE 5
GROUP CONFORMITY RATINGS (BY PERCENTAGES)

<i>Students</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>'t'</i>	<i>'p'</i>
HSSCS	50	60.01	8.33	6.3	.01
HDSCS	50	51.00	5.73		

TABLE 6
SUPER EGO PATTERNS (BY PERCENTAGES)

<i>Patterns</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>'t'</i>
E	5.21	3.00	5.01	2.91	.34
I	4.99	2.72	4.78	2.99	.64

HSSCS are well adjusted rather than HDSCS.

Super Ego Patterns

Table 6 points out both HSSCS and HDSCS have stronger *E* and weaker *I* when compared with the index of means which are 4.12 and 6.79, respectively. This means that students have a greater tendency to refute the charge and a lesser tendency of accepting the fault with some due reasons.

The hypothesis is partially rejected. Reactions to frustration in relation to school climate differed in I-A, M-A, O-D, E-D, E', I', I, M', m and CGR. Students of satisfying school climate are much more adjusted when compared with that of dissatisfying school climate.

So, it can be stated that school climate definitely effects reactions to frustration. Students develop personality characteristics in a good college environment (Mitchell 1969, Baryam 1969). And these characteristics help them to face frustration in a meaningful manner. Succinctly, it can be

suggested that school should try to improve its environment. So that it really contributes in developing the personalities of students. "Disturbed campuses probably are the location of frustrating environment" is a fact that needs further study.

References

- Amsel, A. The role of frustrative non-reward in non-continuous reward situations. *Psy. Bull.*, 55, 102-119, 1958
- Amsol, S. Effect of environmental characteristics upon the personality structure of nurses. *Journal of Medical Psy.*, 19, 7, 8-9, 1976
- Baryam, M. The interaction of student characteristics with instructional strategies. A study of students' performance and attitude in a high school innovative course. Unpublished Ph. D. thesis, Harvard University, 1969
- Dixit, R. C. Development of school environment scales. New Delhi: NCERT Project, 1971
- Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., Sears, R. R., Ford, C. S., Hovland, C. I. and Sollenberger, R. T. Frustration and aggression. New Haven, Conn.: Yale University Press, 1939
- Freud, S. *Beyond the pleasure principle*. Standard Edi. Vol. XVIII. London: Hogarth Press, 1955 (First German Edition, 1920)
- Holland, R. Balances and disturbances in campuses. In *Social issues and their nature*. Academic, p. 89, 1976
- Lawson, R. *Frustration: The development of a scientific concept*. New York: The Macmillan Company, 1965
- Mitchell, J. V. (Jr.) Dimensionability and differences in the environmental process of high schools. *American Educational Research Journal*, 5 (4), p. 513-530, 1968
- Pareek, U. Children's reactions to frustrations. Ph. D. thesis, Delhi University, 1958
- Rosenzweig. Picture-frustration study—a review. *Psy. News Letter*, 10, 89-105, 1959
- Patel, P. M. Assessment of characteristics of school environment. New Delhi: NCERT Project, 1971
- Patterson, G. R., M. Ludwig, and Sonoda, B. Reinforcement of aggression in children. Unpublished Manuscript, University of Oregon, 1961
- Penney, R. K. The effects of non-reinforcement on response strength as a function of number of previous reinforcement. *Canad. J. Psy.*, 14, p. 206-215, 1960
- Ronald, L. R. and Ronald, K. R. *School climate and its characteristics*. Publication No. 12, Spring, 1976
- Sears, R. R., Maccoby, E. E. and Levin, H. *Patterns of child rearing*. Evanston, Ill. Row, Peterson & Company, 1957
- Sharma, C. M. *Manual of directions for school situations reactions to frustration test*. Rupa Psychological Centre, 1975
- Sharma, T. R. and Sharma, M. Frustration reactions of seventh grade children. *Indian Educational Review*, Vol. XII, No. 1, p. 30-37, 1977
- Shaw, M. C., and Dorris, B. M. The reaction to frustration of bright high school underachievers. *California Journal of Ed. Research*, pp. 120-4, 1960

- Walters, R. H. and Brown, M. Studies in reinforcement of aggression : Transfer of responses to an interpersonal situation. *Child Development*, 34, p. 563-571, 1963
- Waterhouse, I K. and Irwin Child Frustration and the quality of performance. *Journal of Personality*, 21, p 298-321.

APPENDIX

(a) *School Climate Scale and Inter-personal Trust Scale*

For constructing these scales, first of all, students who are studying in the schools and who had studied in the schools a few years back were interviewed. Statements collected so, were then edited. After editing, these statements were given to some teachers and students and they were asked to strike off those statements which had less than 20 per cent validity for school climate. The rpbs was computed to ascertain the internal consistency of the scales and the 't' was applied to find out the discriminatory power. School climate scale consists of 110 items while Inter-personal trust scale has 24 items only.

(b) *Spheres of Categorization*

1. Direction of Aggression : It has three categories—(i) Extra-punitive (E-A) aggression turned to environment. (ii) Intropunitive (I-A) aggression turned to self (iii) Impunitive (M-A) aggression is evaded.
2. Types of Reactions : Its three categories are: (i) Obstacle Dominance (O-D) barrier causing frustration in the response. (ii) Ego Defence (E-D) ego dominates in the responses. (iii) Need Persistence (N-P) solutions are given for minimizing frustration.
3. Factors of Frustration Reactions : The nine factors are the nine combinations of three categories of direction of aggression and three categories of types of reactions.
4. Super Ego Patterns : The two patterns are (i) E—Aggressive denial of the blame with which one is charged. (ii) I—Admitting the guilt but denial of any fault referring to unavoidable circumstances.



Facility Value and Discrimination Index of Supply-Type Questions

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THE METHOD to find out the facility value and discrimination index of supply-type questions is essentially a generalization of those used in case of objective-type items but two factors, namely the subjectivity of marking and choice among questions, complicate their use and interpretation. In the case of a compulsory essay question, the facility value (FV) may be defined as the average (mean percentage) marks obtained on the question divided by the maximum marks for the questions.

$$FV = \frac{\text{Sum of marks obtained by all candidates}}{\text{Sum of maximum marks obtainable on that question}}$$

This is just a generalization and this FV is difficult to interpret as compared to a similar one for an objective-type item. A low FV for a compulsory essay question may indicate that it was severely marked, while being inherently of average difficulty. With essay-type questions (choice or no-choice papers) these two alternative interpretations which are not of course mutually exclusive (a question may be both inherently rather difficult and severely marked) can always be offered and it is up to the examiners/teachers to review all the evidences to decide the relative effect of the two factors. One of the ways in which it can be taken is to give a new way of defining FV as the mean percentage marks which a homogenous group of average ability candidates ($M_T=50$ per cent) would be expected to obtain on the question, i.e.

$$FV \text{ of a question} = (50 + M_Q - M_T)$$

Where M_Q = mean percentage marks on the question by those attempting it

M_T = mean ability index, i.e. percentage total marks obtained by all those who attempted the question

This is the Morrison index. There is another index suggested by Willmott and Nuttal :

$$FV = (M + M_Q - M_T) \text{ where } M = \text{mean per cent of the group on the total examination}$$

While Morrison FV is a 'sample free' technique, Willmott and Nuttal FV is not. It is also possible to take up only 27 per cent higher and 27 per cent lower group to find $FV = (50 + M_Q - M_T)$ and these are also reported in the illustrative example that FVs based on 27 per cent higher and 27 per cent lower groups are added and averaged, they compare very well with FVs over the entire population.

It was also suggested that M_T = mean ability index may be interpreted taking every student's total marks on the paper and subtract from it the marks on that question. This is assumed to be a better indicator of ability of the candidate. It is, however, left to the examination unit/examiner/teacher to choose the method considered to serve a definite purpose. In the section dealing with simplified methods, a method suggested by Harper is also included for calculating FVs

Discrimination Index

Discrimination index is defined as an index indicating the ability of the item to discriminate (positively) between the higher ability students and the lower ability students. Discrimination is usually measured by the correlation between the score on the item and the score on the total test. In theory, values of DI may range from -1.00 to $+1.00$. A value greater than $+0.30$ among a sample of candidates numbering 150 or more generally indicates a satisfactory degree of discrimination. Value between 0 and 0.30 indicate that these items need improvement while those with -ve values must be discarded. A very common step to find DI is to divide the total sample into two groups on the basis of the criterion. The obvious question is whether the two groups which may be upper/lower halves, or quarters or 27 per cent, -27 per cent or 10 per cent or -10 per cent or other proportions of equal numbers, behave differently with respect to the item. The simplest index from the source is the difference $(P_u - P_l)$ where P_L and P_U are proportions of examinees answering the item right in lower and upper groups, respectively. An easily obtained derivative of this difference is $(Z_U - Z_L)$, where Z_U and Z_L are the normal curve deviates corresponding to P_U and P_L . A nomogram is prepared by Iawshe (1971) and the method is called D method and index $D = Z_U - Z_L$.

Johnson puts the upper-lower difference $P_U - P_L$ in a form more convenient for computing by using the formula :

$$ULI = \frac{R_u - R_l}{f}$$

ULI = upper/lower index (DI)

$R_U - R_L$ = numbers giving right answer in upper and lower groups, respectively

f = number of examiner in each group

Johnson recommends using 27 per cent in each group in which case $f=0.27N$. He provides a standard error formula for the ULI which reads :

$$\sigma_{ul} = \frac{1}{f} \sqrt{\frac{R_u + R_l - R_u^2 + R_l^2}{f}}$$

Where the difference $P_u - P_l$ is used as the index; an ordinary critical ratio-test can be applied to determine the significance of the difference in proportions. A chi-square test can also be applied to the frequencies R_u and R_l , the results of which would tell the same story as the critical ratio. Guilford has shown that when we know the proportions who pass the item in equal upper and lower criterion groups, the formula for chi-square reduces to

$$\chi^2 = \frac{N(P_u - P_l)^2}{4P_q}$$

Where P may be taken as the arithmetic mean of P_u and P_l and $q=1-p$.

There are a number of different ways of calculating a DI. Four coefficients of correlation are commonly used to indicate the correlation of an item with a criterion. They are the biserial 'r', point biserial 'r', tetrachoric 'r' and the phi-coefficient.

If we are interested in the correlation between the variable that the item measures, and the continuous criterion measure and if we may assume that the thing measured by the item is continuously and normally distributed in the populations, the biserial 'r' is the coefficient we want. If the criterion variable is also normally distributed in the population, it can be dichotomized and a tetrachoric 'r' may be computed. If we are interested in how well we can predict the criterion from the item or how much it can contribute to a total score with its own score limited to 0 to 1 the point-biserial 'r' is the coefficient to compute. The test theory that regards a total score as the summation of item scores assumes this type of correlation. The phi-coefficient may be applied when the total score distributions arbitrarily dichotomized at some cutting score because the test will be used to discriminate at that level.

1. The Biserial 'r' in Item Analysis

The best formula to use for the biserial 'r' in the item analysis application is :

$$r = \frac{M_p - M_t}{\sigma_t} \times (p/y)$$

Where M_p = mean criterion score of those passing item
(total score on the test)

M_T = mean criterion score of all examinees

t = SD of all total scores

p = proportion passing item

y = ordinate in unit normal distribution corresponding to 'p'

Where complete power conditions do not prevail, it would be best to use only statistics based on those who attempted the item. This would mean that M_T and σ_t will vary for some items. To illustrate its use with an example, let us take item No 1 in our 20-item test on 76 students.

$$p = 43/76 = 0.566$$

$$p/y = 1.438 \text{ (Taken from the table)}$$

$$M_p = \frac{608}{43} = 14.14$$

$$M_t = 12.86$$

$$\sigma_t = 2.79$$

$$\therefore \gamma_b = \frac{14.14 - 12.86}{2.79} \times p/y = \frac{1.28}{2.79} \times 1.438 = 0.657$$

Alternatively the standard error for γ_b to use in testing for significant departure from a correlation of zero can be estimated by the following formula :

$$\begin{aligned} \sigma_{rb} &= \sqrt{\frac{1}{N} \times \sqrt{\frac{P_q}{y}}} \\ &= \frac{1}{\sqrt{76}} \times 1.259 = 0.145 \end{aligned}$$

2. The Point-biserial 'r'

The formula for the point-biserial 'r' adopted to item analysis is :

$$r_{pbis} = \frac{M_p - M_t}{\sigma_t} \times \sqrt{\frac{P/q}{1}}$$

$$\text{Here } M_p = 14.14$$

$$M_t = 12.86$$

$$\sigma_t = 2.79$$

$$\sqrt{P/q} = 1.142$$

$$r_{pbis} = \frac{1.28}{2.79} \times 1.142 = 0.525$$

r_{pbis} can be estimated from the biserial 'r' by the relationship

$$r_{pbi} = r_p \frac{Y}{\sqrt{pq}} = 0.657 \times \frac{0.3944}{0.4964} = 0.525$$

Again, it is possible to look into the graph and read straight.

3 The Tetrachoric 'r'

The use of tetrachoric 'r' in item analysis would be prohibitive without computing aids. An abac (Mosier and McQuitty) enables tetrachoric 'r' to be read off when P_u and P_l are known. The total score distribution must be dichotomized at the median. N should be large (as large as 400) due to large sampling error. Sampling error is computed by :

$$\sigma_{r_t} = \frac{1.253}{\sqrt{N}} \times \sqrt{\frac{\bar{P}_q}{Y}} = \frac{1.253}{\sqrt{76}} \times 12.59 = 0.180$$

4. The Phi-coefficient

In the item analysis situation, where upper and lower groups are equal in number, Guilford has shown that the formula for phi-coefficient is simplified to :

$$\begin{aligned} \phi &= 2 \frac{P_u - P_l}{\sqrt{P_q}} = \frac{0.90 - 0.25}{2 \sqrt{0.4964}} \\ &= \frac{0.65}{2 \times \sqrt{0.4964}} = \frac{0.65}{0.9928} = 0.65 \end{aligned}$$

DI of Essay-type Questions

As in the case of an objective item, the DI of an essay question (choice or no choice-type exam.) is simply the correlation between the marks on the question and the marks on the whole paper (or section) with the difference that Pearson's product moment correlation coefficient (rather than the specialized biserial or pt. biserial) can be used. This has no effect on the way in which the DI is interpreted. However, an objective-type test usually consists of a relatively large number of items so that a single item contributes only a little to the final total, while an essay examination usually requires only half-a-dozen or so questions to be answered. Each essay

question contributes an appreciable amount to the total marks and the correlation between the marks on the question and the marks on the paper is spuriously high. For this reason, a satisfactory *DI* for an essay question is rather higher than that requirement for an objective item and only values >0.50 indicate that a question is showing adequate discrimination. The most likely causes of inadequate discrimination in an essay question are a failure on the part of the markers to use the whole of the available mark and the disagreement on the part of the markers about the qualities that characterize a good answer.

In the illustrative example involving question 1 compulsory (maximum marks 15) and any 5 out of 7 to be answered by 117 students, *DI* is calculated on the basis of:

1. Mark on the question (whose *DI* is to be calculated) with the total marks on the section A.
2. Mark on the question (whose *DI* is to be calculated) with the total marks on the section A (the mark on the question).

This is done for the entire population.

A simplified formula has been suggested by Harper and this is also made use of in the illustrative example. Two illustrative examples are to follow:

1. An objective-type test of 20 items on 76 students.
2. A choice-type examination with 8 questions (question 1 compulsory and any 5 out of 7 questions).

Item/Question Analysis of Choice-Type Examination Facility Values

The facility index for a written question (essay-type) might be defined (as suggested by Drake) as the sum total of the marks obtained for the question divided by the total available marks for the question and expressed as a percentage. This would be the mean percentage marks for the question (M_Q). For this section A, the following Table shows the mean percentage marks for these 8 questions.

TABLE

Section A	I	II	III	Questions IV	V	VI	VII	VIII
MPM or FV	77.13	71.5	72.8	51.9	15.0	57.3	31.9%	61.7%

If the total entry of a representative group answered the question, the facility index so defined will be useful to have. But what if the group

happened to contain a disproportionate number of lower ability candidates ? This would have the effect of depressing the index. Similarly, a disproportionate number of higher ability candidates would elevate the index. The facility index so defined is, therefore, not a conservative one, but depends on the effect of choice. The facility index would not depend so much on the performance for that question by the total entry, as on the performance by a possibly a typical group. This choice factor does not complicate the determination of the FV of an objective item. In discussing a possible facility index for a question, it is assumed that the question has been reliably marked. If this is not the case, a further factor is introduced which will be a function of the examiner. If the examiner is lenient, the FV will be artificially raised and vice versa. This influence again is absent in the case of objective test. An allowance may have to be made for the effect of choice as well for the effect of marking in the case of essay questions. A high facility index in the case of an objective-type item means it is an easy item. A high facility index for an essay question could mean as easy question but could equally mean lenient marking.

A matched question would be one for which an average ability student would score 50 per cent. This means that the marking is neither lenient nor severe. If such a question is ideally discriminating, we would expect that a student of ability 1 standard deviation above average to obtain a mark for the question which is 1 standard deviation above 50 per cent. If the marks are standardized with mean = 50 per cent and $sd = 15$ per cent then these two students will obtain 65 and 35 per cent, respectively. This is merely stating in another way, what the question is meant to achieve, if it is functioning properly. We may extend this to homogeneous groups of students. If a homogeneous group of average ability students attempted the question, we would expect a mean marks of 50 per cent. If it is an easy question the mean marks may be 60 per cent or more and for a difficult question the mean marks may be 40 or less. We may use this as a basis for defining a facility value for the essay question. The facility value may be defined as the mean percentage marks gained on the question by a homogeneous group of average ability candidates. In practice, we do not have homogeneous group of candidates. However, the mean percentage marks gained on a question by a sample taken from the population of students would be the same as that for a homogeneous group of the same mean ability, if the question is matched and discriminating properly.



Personality Traits of Democratic and Laissez-Faire Type of Teachers

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EDUCATORS IN GENERAL are expected to develop such understandings, attitudes, abilities and skills among educands as are helpful in enabling them to contribute to the development of the country as well as to transform educational institutions into dynamic, creative and self-reforming organizations. They can, however, fulfil these expectations only when they are endowed with personality traits which facilitate the development of the aforesaid abilities. The development of these abilities enables the teacher to exert an impact on the personalities of his pupils. The impact of the teacher's personality on his pupils can be ascertained through the perceptions of the latter towards them.

Teachers differ in their mood and style of exerting influence. Some teachers influence their pupils through democratic strategies while others do so by giving freedom to their pupils to a degree that they act in any way they choose. The interaction treatment adopted by these two categories of teachers involve different pattern of personality traits. The present study was designed to estimate the accuracy of this assumption.

Objectives

The study was designed mainly with a view to differentiate the teachers on the basis of their distinctive leadership characteristics into democratic and laissez-faire types, and to compare them in regard to their personality traits.

Basic Assumptions

The basic assumptions behind the study were :

- (1) The one who is a teacher, is a leader in the classroom situations by virtue of his higher age, varied experiences, greater knowledge and more maturity.
- (2) Teachers differ among themselves in respect of their leadership behaviours. Some teachers are democratic while others may be of laissez-faire type.
- (3) No teacher is perfectly democratic or laissez-faire in his style.

- (4) Leadership style of a teacher is a consequence of the specific personality attributes he is endowed with.

Hypotheses

The following hypotheses were proposed to be tested :

- (1) Other things being equal the chances are that each of the teacher under study will have a more developed democratic leadership component than the laissez-faire component of leadership.
- (2) The teachers differing in respect of development of leadership component of democraticness and laissez-faireness are likely to show significant differences in respect of each of the personality trait on which they are to be compared.

Method and Procedure

For achieving the objectives of the study causal comparative method was used. The techniques used for testing the hypotheses were observation, testing and statistical. Finally Sharma's adapted version of Lippitt's Democratic, Authoritarian and Laissez-faire leadership sub-scales was used for measuring leadership type and Cattell's 16 P F. questionnaire was used for measuring personality trait.

Sampling : Size and Technique

The present study was conducted on 500 high schoolers and 90 teachers of five institutions, namely, D. R. C. school, P. R. C. school, S. R. C. school, St. Mary School and St. Jone's School, Meerut, selected through stratified random sampling procedure.

Processing the Data

To ascertain the degree of development of democraticness and laissez-faireness leadership components of a teacher the categories as shown in Table 1 were made.

TABLE 1
LEADERSHIP TYPE

<i>Type of Leadership</i>	<i>Range of Scores</i>				
	MOST	MORE	NORMAL	LESS	LEAST
Democratic	25-30	19-24	13-18	7-12	1-6
Laissez-faire	21-25	16-20	11-15	6-10	1-5

To find out the overall significance of difference between democratic and laissez-faire teacher-leaders in respect of each of the 20 traits of their

personality, the trait data were subjected to t-test of significance. The results obtained through the application of t-test are shown in Table 2.

TABLE 2

<i>Personality Traits</i>	<i>Democratic (X_1) and Laissez-faire (X_2)</i>		
	X_1	X_2	<i>t</i>
Sizothymia-Affectothymia	4.38	2.83	2.92**
Lower-Higher Scholastic Mental Capacity	6.38	3.50	14.02**
Lower-Higher Ego Strength	4.3	4.33	0.04
Submissiveness-Dominance	5.15	4.50	1.31
Desurgency-Surgency	3.1	3.30	0.46
Weaker-Stronger Super Ego Strength	7.00	4.33	4.50**
Threctia-Parmia	4.92	5.83	1.54
Harria-Premia	6.92	6.15	1.38
Alaxia-Protension	7.84	6.00	3.04**
Praxenia-Autia	4.76	4.33	0.86
Artlessness-Shrowdness	6.30	4.66	2.52*
Untroubled Adequacy-Guilt Proneness	5.53	3.66	4.25**
Conservatism-Radicalism	5.76	5.00	1.46
Group Adherence-Self-Sufficiency	6.15	5.00	1.96
Low Integration-High Self-Concept			
Control	5.30	3.66	4.83**
Low-High Ergic Tension	5.23	3.00	4.65**
Low-High Anxiety	6.23	4.33	3.51**
Introversion-Extraversion	3.92	5.00	1.86
Tenderminded Emotionality-Alert Poise	4.92	5.16	2.41*
Subduedness-Independence	5.53	5.50	0.35

*significant at 0.05 level

**significant at 0.01 level

Conclusions

An observation of the raw scores on leadership scales of democraticness and laissez-faireness leads to the following findings :

1. Each teacher differs from the other in respect of the development of type of leadership.
2. Some teachers are more democratic and less laissez-faire type, while some are more laissez-faire and less democratic type.
3. The democratic teacher-leader has been found by his pupils to determine the policy through group discussion and gains the activity perceptive through activity steps in consultation with his group of pupils.
4. The laissez-faire type of teacher-leader has been perceived by his pupils to giving complete freedom to the groups and to be making minimum

of the participation in the performance of the tasks.

The t-values obtained after comparing the democratic and laissez-faire teacher-leaders on personality traits leads to the following conclusions :

1. Democratic and laissez-faire type of teacher-leaders are similar in respect of such personality traits as low-higher ego strength, submissiveness-dominance, threatia-premsia; alaxia-protension group adherences-self-sufficiency, introversion-extraversion and subduedness-independence.

2. The personality traits on which the democratic and laissez-faire type of leader have been found to differ significantly are : sizothymia-affectothymia, lower-higher mental scholastic capacity, weaker-stronger super ego strength, praxernia-autia, artlessness-shrewdness, untroubled adequacy-guilt proneness, low integration-high-self-concept control, low-high ergic tension, anxiety and tenderminded emotionality-alert poise.

3. The teacher-leaders are characterized by such personality behaviours as warm-heartedness, cooperativeness, soft-heartedness and adaptability, high scholastic mental capacity, a strong super ego strength to be anxious to do the right things, polished and wordly, at times moody, experimenting and deceptive, reasonably tense but unable to remain inactive, extroverted and relatively with more alert poise.

4. Laissez-faire type of teacher-leaders are characterized by such behaviours as being too much critical, possessing a lower mental scholastic capacity, unsteady in purpose, casual and lacking in efforts, spontaneous and uninhibited, suspicious, too much conventional, neither shrewd nor artless, neither confident nor depressed, reasonably radical, sedate, relaxed and satisfied, neither highly extroverted nor highly introverted and possess an alert poise.

References

- Ausubel, D P and Schiff, H M Some interpersonal determinants of individual differences in socioempathic ability among adolescents. *Journal of Social Psychology*, 41,39-56, 1955
- Bass, B.M. and Coates, C. H. Situational and personality factors in leadership in ROTC. Unpublished manuscript Louisiana State University, 1952
- Bass, B.M McGhee, C.R., Hawkins, W.C , Young, P C and Gebel, A.S. Personality variables related to leaderless group discussion behaviour. *Journal of Abnormal and Social Psychology*, 48, 120-8, 1953
- Bass, B M , Wurster, C R., Doll, P A. and Clair, D J Situational and personality factors in leadership among sorority women. *Psychological Monograph*, 67,16 (whole No. 366), 1953

- Bonney, M. E., Hoblit, R. E. and Dreyer, A. H. A Study of some factors related to sociometric status in a men's dormitory. *Sociometry*, 16, 287-301, 1953
- Campbell, D. T. *A Study of leadership among submarine officers*. Ohio State University Research Foundation, 1953
- Cattell, R. B. and Stice, G. F. Four formulae for selecting leaders on the basis of personality. *Human Relations*, 7, 493-507, 1954
- Flemming, E. G. A factor analysis of the personality of high school leaders. *Journal of Applied Psychology*, 19, 596-605, 1935
- Gowan, J. C. Relationship between leadership and personality factors. *Journal of Educational Research*, 48, 623-7, 1955
- Richardson, H. M. and Hanawalt, N. G. Leadership as related to the Bernreuter personality measures, III. Leadership among adult men in vocational and social activities. *Journal of Applied Psychology*, 28, 308-17, 1944
- Stogdill, R. M. Personal factors associated with leadership : A survey of the literature. *Journal of Psychology*, 25, 35-71, 1948



Incidence of Under-Achievement at the Higher Secondary Level

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GENERALLY THE STUDENTS who secure good marks in their annual examinations are treated as brilliant students, while those who fail or do not secure good marks are called as dullards. Thus the questions arise : Is your examination system or pattern sufficient to assess the students' intelligence correctly ? Are the students who secure less marks or fail in their examinations, really dullards ? Or, is their intelligence at par to those students who secure good marks in the examination ? The problem deserves consideration and this research work is an effort to investigate into this problem.

Objectives

1. To test the actual intelligence of the students who secure less marks in different subjects.
2. To find the causes due to which the intelligent students secure less marks in different subjects
3. To suggest methods to remove the above causes

Sample

1. Students who secured less marks of Classes IX and X of higher secondary schools of Saugar city.
2. Different subjects taught in science and arts faculties in higher secondary schools.

Definition and Clarification of New Words

1. *Under-achievement* To score less than 45 per cent marks in the subject concerned is called as under-achievement. This limitation (45 per cent) is fixed by the subject specialist.
2. *Over-intelligent* : In this research work those students who are treated as over-intelligent are under-achievers but whose IQ is $M + 1\sigma$ more than average IQ.
3. *Incidence* : Incidence means the percentage of over-intelligent students from the under-achievers.
4. *Achievement* : The total marks obtained in different subjects by the students.

Design of the Study

The subject of the research work is to study about the students of higher secondary who are intelligent but under-achievers and who secure less than 45 per cent marks in the subject concerned. This percentage has been fixed in consultation with teachers of many higher secondary schools. The second object of this study is about the subjects in which the students are under-achievers. For this purpose four subjects each from arts and science faculties are selected. These subjects are, arts group—geography, economics, civics and history, science group—physics, chemistry, mathematics and biology.

After deciding the above objects, the lists of under-achievers were prepared with the help of achievement records of higher secondary schools. After preparing the lists, the intelligence test of available students, according to the lists, was undertaken. In this test the IQ of students was measured by the marks obtained by them, then the frequencies of all such IQ's was determined by the class-interval method. The mean calculated was the average IQ. By the help of standard deviation over-intelligent students were sorted out, i.e. the students whose IQ was $M+1\sigma$ or more. After this, a list of the students who were over-intelligent in different subjects according to the lists of under-achievers was prepared and their percentage calculated. The percentages so obtained in different subjects were the 'incidence of under-achievement'. The tools used in the study were: (i) Intelligence test by Prof. S. Jalota, Chandigarh University, (ii) Structured and diagnostic interview, (iii) Achievement records.

Method

Under-achievers (290) were selected from the five higher secondary schools of Sagar city. Of the 195 students available for intelligence test, 115 were from arts group and 80 from science group. The intelligence test made by Prof. S. Jalota was used to test their IQ. In this test students had to answer 100 questions. Every correct answer was given one mark. The marks obtained in intelligence test and the relative scores of different ages by Table 1 was taken and thus the IQ was calculated by the formula:

$$IQ = \frac{\text{Marks obtained in test}}{\text{Relative score of that age}} \times 100$$

TABLE 1
RELATIVE SCORES ACCORDING TO DIFFERENT AGES

Age	12	13	14	15	16	17	18	19
Relative Score (Mean)	31	33	35	38	39	39	41	41

Calculation by the above formula is illustrated as follows : One student obtained 36 marks in intelligence test and his age is 17 years then his IQ is calculated as :

$$IQ = \frac{36}{39} \times 100 = 92.3$$

By the above method the IQ's of 195 students were calculated. All the students were between 15 to 19 years of age. According to calculation minimum IQ was 43 and the maximum was 165. IQ's of all the 195 students are given according to class-interval in Table 2.

TABLE 2
INTELLIGENCE QUOTIENT OF UNDER-ACHIEVERS

<i>Class interval</i>	<i>Frequencies</i>	<i>Class interval</i>	<i>Frequencies</i>
160—169	1	90—99	38
150—159	2	80—89	32
140—149	2	70—79	21
130—139	6	60—69	33
120—129	7	50—59	13
110—119	16	40—49	2
100—109	22		
N=195			

The mean as calculated by the [above frequencies (Table 2) and class-intervals which is as follows :

$$\begin{aligned} \text{Mean} &= A.M + \frac{\sum fd}{N} \times ci \\ &= 94.5 + \frac{-107}{195} \times 10 \\ &= 89.0 \end{aligned}$$

The definition of students who will be treated as over-intelligent is mentioned in the definition and clarification of new words. According to it students having IQ $M+1\sigma$ and more are called as over-intelligent. For calculating this the standard deviation is determined by the frequencies marks obtained, which is as follows :

$$\begin{aligned} S.D. &= ci \sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd}{N}\right)^2} \\ S.D. &= 10 \sqrt{\frac{1087}{195} - \left(\frac{107}{195}\right)^2} \\ S.D. &= 23.0 \end{aligned}$$

This standard deviation is added to the mean to obtain $M+1\sigma=89.0+23.0=112.0$. Students obtaining above this IQ (112.0) were treated as over-intelligent in under-achievers. Thus this is achievement above by $\sqrt{4}\cdot 1\sigma$.

The incidence of under-achievers, number of over-intelligents from the total students, for each faculty is shown in Table 3

TABLE 3
INCIDENCE OF UNDER-ACHIEVEMENT

ARTS FACULTY			SCIENCE FACULTY			TOTAL		
No of total under- achiev- ers	No. of over-in- telli- gents	Incidence	No of total under- achievers	No of over- intelligents	Incidence	Total under- achievers	Total over- intelli- gents	Total incidence
115	8	6.9%	80	24	30%	195	32	16.4%

According to Table 3 we see that 8 students from 115 under-achievers and 24 students out of 80 under-achievers were over-intelligent in arts and science faculty respectively. Thus incidence of under-achievement in arts group is 6.9 per cent and is 30 per cent in science group according to over-intelligent students. The total incidence of both the groups is found to be 16.4 per cent. This incidence is of those students who are over-intelligent but marks secured in examination by them is below 45 per cent.

After finding the incidence of under-achievers in all the groups, the incidence in individual subject by the under-achievers was determined which was found according to Table 4

TABLE 4
INCIDENCE OF UNDER-ACHIEVEMENT IN DIFFERENT SUBJECTS

S No.		ARTS FACULTY					SCIENCE FACULTY		
		His.	Geog.	Eco.	Civ.	Phy.	Chem.	Maths.	Bio.
1.	No. of total under-achievers	44	115	71	115	80	80	34	46
2.	No. of over-intelligent under-achievers	2	8	6	8	24	24	11	13
3.	Incidence of (in per cent) under-achievement	4.5	6.9	8.4	6.9	30	30	32.3	28.2

Table 4 shows the incidence of under-achievement in arts and science faculties. In arts faculty the least incidence is 4.5 per cent in history and the highest is 8.4 per cent in economics, while in geography and civics it is equal, i.e. 6.4 per cent. In science faculty the incidence is found to be

approximately equal. In mathematics it is the highest (32.3 per cent) while in biology it is the least (28.2 per cent). In physics and chemistry it is equal (30 per cent). Thus we see that there are more differences in incidence in arts subjects than in science subjects, while the incidence of under-achievement was more in science group than in arts group. This shows that the number of over-intelligent under-achievers in science group is more than the number of over-intelligents in arts group. To know about the incidence of under-achievers in different subjects an interview of over-intelligent under-achievers was taken. For this purpose an interview schedule was prepared.

The Causes of Under-achievement The causes of under-achievement of over-intelligent students as gathered by the interview are as follows :

1. The school is about 3 to 4 Kms from their residence so they get tired because they have to cover this distance on foot.
2. Most of the students belong to low-income group so they do not get sufficient facilities for their studies.
3. The number of rooms is less and family members are more so they cannot read easily.
4. Most of the houses are old (*kuchlu*), so bad weather affects their studies.
5. They cannot devote sufficient time in studies due to household works. They have to do manual labour.
6. Because of the illiteracy of neighbours, they do not get conducive environment.
7. Lack of good and literate friends.
8. They do not get proper guidance of teachers and the behaviour of teachers with them is non-cooperative.
9. They fear from the subjects due to under-achievement and so they run away from schools.
10. Ill-treatment of parents or their long sickness, affects their studies.
11. Most of the students are physically weak so they are not able to take interest in studies.
12. They do not understand the subject thoroughly.

Conclusion

In arts group the incidence in economics was more than other subjects. This shows that the teaching method is not up to the mark and it should be improved. This is also shown by the fact (interview) that students were unable to understand the subject.

In science group the incidence of under-achievement was more than that in arts group. The students do not understand the subject thoroughly and so the teaching methods of science group should also be improved, specially in mathematics. During interview most of the students expressed that they did not understand the subject-matter clearly in classroom.

Other causes are poverty, illiteracy of parents, poor financial conditions and manual labour, lack of study facilities in home, etc. Thus one cause of under-achievement may be lack of time and space, which is shown by the interview.

Suggestions

1. The method of teaching the subject should be improved. To achieve this aim, principals should feel their responsibility and supervision of class teaching should be done by them from time to time.

2. The over-intelligent under-achievers should be given individual attention by the teachers.

3. The scholarships should be given to such students so that poverty may not hinder their studies.

4. The poor students must get stationery and nourishing materials and medical facilities from schools.

5. Teacher should give personal attention to the worries of the students and their behaviour must be cooperative

References

- Bricklin, B. and Bricklin, P. M. *The psychology of under-achievement*. New York : Delacorte Press, 1966
- Farquhar, W. W. and Payne, D. A. A classification and comparison of techniques used in selecting under- and over-achievers *Personnel and Guidance Journal*, XLII, 1964
- Peterson, J. The researcher and the under-achiever : Never the twain shall meet. *Phi Delta Kappan*, XLIV, 1963
- Garrett. *Statistics in education and psychology*. Fetter and Simons Pvt. Ltd., Indian Edition, 1965



A Comparative Study in the Areas of Adjustment between Intellectually Bright and Average Higher Secondary Adolescents

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IN THE NEW PATTERN of education bifurcation of courses has been extended from Class IX to XI. It has been stipulated to bifurcate students into two streams, i.e. academic and vocational, on the basis of their scholastic achievement at stage '10' which is known to be mainly dependent on utilization of abilities, i.e. adjustment. No assessment of intelligence is proposed. Hence comparison of students in different areas of adjustment in relation to intelligence needs little justification.

The role of intelligence in determining adjustment of individuals has since long been a topic of controversy. Researches conducted so far in this area may be divided into two groups. In a number of studies (e.g. Terman 1925, Paulwitty 1954, Carter 1960, Jordon 1960, Gallagher 1964, Verma 1964, Flaherty and Reutzel 1965, Kumar 1966) intellectually bright adolescents have been shown to generally have better adjustment in different areas of adjustment in comparison to intellectually average adolescents. In a number of studies (e.g. Terman 1917, Bills 1923, Vitles 1924, Jordon 1969, Engine 1975) intellectually average individuals have been shown to generally have better adjustment than intellectually bright individuals. Such a disagreement among research workers needs verification. An attempt was made to compare intellectually bright and average adolescents in regard to their problems in different areas of adjustment.

Method

Subjects

Two hundred Class X boys (100 bright and 100 average) served as

*The paper is based on a part of an unpublished thesis entitled 'A study of adjustment, personality values and vocational interests of the supernormal and normal adolescents', submitted by the author and approved for Ph. D. Degree by Agra University in 1970. Support and encouragement extended by Dr. Raj K. Ojha is duly acknowledged.

subjects. They were studying in different institutions of Moradabad, Uttar Pradesh (India). They were screened from a randomly selected sample of 700 boys through two intelligence tests (Vernon and Ray Chowdhury 1960, Ojha 1968). Each group was further dichotomized with regard to age. Thus, half of the subjects in each group were 15 years and other half were 16 years.

Tools and Techniques

Bell's adjustment inventory (student form) was adapted and standardized in India (Pandey 1968). The inventory in its present form has a split-half reliability of .68 upward to .95 for different areas of adjustment. The inter-consistency validity of the inventory ranges from .58 onward to .94. The inventory provides four separate measures of home, health, social and emotional adjustment. The inventory is negative, i.e. the items ticked in 'yes' are taken into account for problems. The items which are ticked in 'no' or '?' (question mark) are not considered. Normative survey method of research was followed. The data was treated through suitable tests of significance and variance and through tentative norms calculated through PES.

Results and Discussion

Means and SDs of 'yes' answers of the two groups (average and bright) on each field of adjustment have been presented in Tables 1 and 2 in respect of 15 years and 16 years adolescents. Values of t-ratio and F-ratio along with levels of significance have also been given.

TABLE 1
PROBLEMS OF 15-YEAR CLASS X AVERAGE AND BRIGHT ADOLESCENTS
IN DIFFERENT AREAS OF ADJUSTMENT

<i>Fields</i>	<i>Cate- gories</i>	<i>No.</i>	<i>Means</i>	<i>SDs</i>	<i>CR</i>	<i>p</i>	<i>F</i>	<i>p</i>
Home	A	50	10.14	3.62	2.28	.05	1.48	NS
	B	50	11.08	4.41				
Health	A	50	8.48	4.29	.16	NS	1.02	NS
	B	50	8.34	4.22				
Social	A	50	12.52	4.92	2.4	.05	1.47	NS
	B	50	14.68	4.05				
Emotional	A	50	8.92	5.52	1.16	NS	1.21	NS
	B	50	9.22	6.06				

TABLE 2
PROBLEMS OF 16-YEAR CLASS X AVERAGE AND BRIGHT BOYS
IN DIFFERENT AREAS OF ADJUSTMENT

<i>Fields</i>	<i>Cate- gories</i>	<i>No</i>	<i>Means</i>	<i>SDs</i>	<i>t</i>		<i>F</i>	
Home	A	50	10.94	4.10	1.40	NS	1.19	NS
	B	50	9.74	4.47				
Health	A	50	6.50	3.44	.82	NS	2.33	.01
	B	50	7.22	5.25				
Social	A	50	13.22	3.92	.34	NS	2.14	NS
	B	50	12.90	5.55				
Emotional	A	50	8.06	4.46	.05	NS	1.02	NS
	B	50	8.14	6.72				

A—Average, B—Bright

TABLE 3
AGE-WISE COMPARISON BETWEEN 15-YEAR AND 16-YEAR
ADOLESCENTS ON THE BASIS OF POOLED MEANS AND
POOLED SDs

<i>Fields</i>	<i>Cate- gories</i>	<i>No</i>	<i>Pooled Means</i>	<i>Pooled SDs</i>	<i>t</i>	<i>level</i>	<i>F</i>	<i>level</i>
Home	A	100	10.61	4.02	.32	NS	1.13	NS
	B	100	10.34	4.29				
Health	A	100	8.41	4.26	1.80	NS	1.04	NS
	B	100	6.86	4.35				
Social	A	100	13.60	4.49	.59	—	1.11	NS
	B	100	13.06	4.74				
Emotional	A	100	9.07	5.79	1.15	—	1.10	NS
	B	100	8.10	5.59				

A stands for 15 year and B for 16 year

Data tabulated in Tables 1 and 2 show that 15-year groups differed significantly on home and social adjustment ($t=2.28, .05$; $t=2.4, .05$). In both the fields bright boys have scored higher. Sixteen-year groups differed significantly in regard to variability among the members of the groups on health and social areas ($F=2.33, P.01$; $F=2.14, P.01$). SDs of bright boys for both these areas are higher. Apparently, the bright boys have more problems of adjustment and need more care.

Table 3 indicates no relationship of 15 year and 16 year ages with problems in different areas of adjustment.

TABLE 4

NUMBER OF AVERAGE AND BRIGHT 15-YEAR BOYS SEEKING
GUIDANCE (CALCULATED THROUGH SDS PE)

<i>Fields</i>	<i>No. of Average</i>	<i>No. of Bright</i>
Home	10	11
Health	13	11
Social	13	16
Emotional	13	14

TABLE 5

NUMBER OF AVERAGE AND BRIGHT 16-YEAR BOYS SEEKING
GUIDANCE (CALCULATED THROUGH SDS PE)

<i>Fields</i>	<i>Average</i>	<i>Bright</i>
Home	11	9
Health	8	12
Social	13	9
Emotional	10	10

An inspection of Tables 4 and 5 suggests requirement of guidance to sizeable number of boys in both groups.

On the basis of this study, it can be safely concluded that the proposed bifurcation of students into two streams at the plus 2 stage on the basis of their scholastic achievement at '10' stage would not give much benefit to bright boys if their problems in different areas of adjustment at stage '10' are not properly assessed and redressed. Sizeable number of boys require guidance.

References

- Bills, M. A. Relation of mental alertness test score to position and permanency in company. *J. App. Psych.*, 7, 1923
- Carter, H. D. *Gifted children: Encyclopedia of Educational Research*. C.V. Harris (ed.), New York: Macmillan & Co, p. 584, 1960
- Engine, Ann. W. Prediction of classroom achievement using intelligence and behavioural variables for inner city children. *Psychological Reports*, 36(1), 67-76, Feb, 1975
- Gallagher, J.J. *Teaching the gifted child*. Boston: Allyn and Bacon, 35, 1964
- Hollingworth, L.S. *Gifted children: their nature and nurture*. New York: McMillan and Co, 374, 1926

- Jordon, A.M. *Education Psychology*. New York : Henry Holt and Co., 434, 1960
- Kumar, K A study of reactions to frustrations, needs, adjustments, and vocational interest of the super-normal, normal and sub-normals. Unpublished Ph D thesis, Agra University, 336-337, 1966
- Ojha Raj, K. and Ray Chowdhury, K. *Verbal intelligence test group and individual*. Moradabad, 1968
- Pandey, A. *Adjustment inventory*. Moradabad, 1968
- Paulwitz, *The gifted child*. Boston : Heath & Co., 45, 1954
- Relahery, R. and Rentzel, V.E Personality traits of high and low-achievers in colleges. *Journal of Educational Research*, 58, 9, 1965
- Ringness, T A Emotional adjustment of the academically successful bright Xth grade boys *Journal of Educational Research*, 59, 2, 1965
- Terman, L. M. A trial of mental and pedagogical tests in civil service examinations for policemen and firemen. *J App Psy.*, 1, 17-29, 1917
- Terman, L. M *Genetic studies of genius*, Vol I Stanford University Press, 64, 546-47
- J. Verma, B L A study of personal problems, adjustments, traits of personality and vocational interests of super-normal school children. Unpublished M.Ed dissertation, 214-216, 1964
- Vernon, P E. and Ray Chowdhury, K. *Non-verbal G Test* Aligarh Muslim University, 1958
- Vittles, M.S Selection of cashiers and predicting length of service. *J Pers. Res.*, 2, 467-473, 1924

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Book Reviews

Education and Inequality

Education, Inequality and Life Chances

Organisation for Economic Cooperation and Development, Paris 1975, Vol. 1: pp. 612, Vol. 2 pp. 448 (paper), Price: F95 00/ £10.60/ \$23.75 (2 Volumes).

EDUCATION IS REGARDED now-a-days as an effective solution to several socio-economic problems. Basic economic theory suggests that increase in educational investments results in larger supply of educated people, and this pushes down the rates of return (wages) to education and thus reduces income disparities significantly. By increasing social mobility and fostering socio-economic equality education is supposed to contribute towards 'harmonizing and maintaining the social and economic system'. By providing investment in 'human capital' it should influence the quality of labour and accordingly its productivity and the national product at large. By improving equality in access to education, an avenue can be provided for social advancement to the children of the bottom classes. These are some of the views about education which are being theoretically and empirically proved and disproved often. While there is relatively less disagreement among the educationists on the relation between education and personal earnings, the hypothesis that education is a 'great equalizer' is often questioned. Some people even argue and prove that education increases inequality (as the education of the higher income groups is being subsidized by the lower income groups). *Education, Inequality and Life Chances* makes a significant contribution to this debate.

In fact, the Organisation for Economic Cooperation and Development (OECD) has been doing considerable work in promoting research on education for a long time. The Mediterranean Regional Project consisting of few country-case studies was a landmark in the research in economics of education. The present two volumes under review are equally welcome volumes in the field. The OECD Committees of Education and on Manpower and Social Affairs held a Seminar on these problems at Paris in

January 1975 in which about 90 experts on education drawn from different branches of life participated. The volumes under review running into more than 1000 IBM-type-written pages are the outcome of the seminar. The first volume contains 12 papers including 5 background papers prepared by the OECD Secretariat, and a few paper-length comments. Three papers in this volume were written in French, which should have been translated into English either in full or at least their summaries, for the benefit of the non-French knowing people. The themes of the other papers in the first section of Volume 1 are: 'Education, Inequality and Life Chances' (by A. Madison) which presents a critical evaluation of the major policy issues; 'Inequalities in the Distribution of Education between Countries' Sexes, Generations and Individuals' (by M. Kotwal) which throws light on unequal dispersion of education in the 19 OECD countries by sex, grade and age-groups over time; 'Inequality in the Distribution of Personal Income' in which the quality and inadequacy of the officially published statistics on income distribution are discussed and some improvements have been suggested; 'Inequality of Educational Opportunity by Social Origin in Higher Education' (by G. Busch) in which the author finds, based on the up-to-date data on OECD countries, that "Social selectivity in access to higher education is still substantial in all OECD countries, but is declining" rapidly. This section ends with comments on these papers by I.B. Kravis.

The section on 'Educational Policy Options' consists of two important papers, the first providing an excellent survey of the strategies for educational equality by Torsten Husen, and the other 'Distributional Impact of Methods of Educational Finance' by M. Woodhall which is concerned with the problem of alternative methods of educational finances and their extremely complex distributional effects. Both these papers were followed by comments by K. Eide and G. Williams respectively.

The last section in Volume 1 is devoted to the problem of social mobility. Of the three important concepts of social mobility, viz stratum mobility (wage differentials), inter-generational (occupational) mobility and intra-generational (career) mobility, the first two were the central issues of S.M. Miller's paper titled 'Social Mobility and Equality'. Detailed analysis with respect to a few countries has been made on inter-generational occupational mobility. N. Keyfiz's paper is purely theoretical dealing with the techniques of analysing social mobility. More interesting paper was prepared by A.H. Halsey, which explains, apart from several other things, the relation between education and social origin, social status, occupational achievement, etc and the role of education in improving the social mobility, particularly inter-generational occupational mobility in Britain since the second World War. The Volume 1 ends with a similar case study of Spain

by J.D. Nicolas and others.

Volume 2 consists of five country-case studies—Federal Republic of Germany by M. Pfaff and G. Fuchs, Japan by T. Watanbe, the United States by B.A. Okner and A.M. Rivlin, Sweden by A. Lindbeck, and the Netherlands by J. Tinbergen—with comments on each paper by experts. The first two studies discuss the impact of education on personal earnings, while the other three are concerned with the role of education in the broad general framework of equalizing policy instruments. The evidence from Germany suggests that (i) the educational level of the parents determines children's educational levels, (ii) education determines to a large extent individual's income levels; (iii) lower income groups subsidize the higher income groups via the educational system, and (iv) educational finance system should be overhauled to make educational system more efficient and more equitable.

The Japanese data presented by Watanbe do not give us a clear idea about the role of education in income distribution. Some figures indicating that inequality (measured by Gini coefficients) is less among university graduates than among lower secondary graduates, particularly in the age-groups 20-49. Further, inequality within the same educational groups has been to some extent reduced overtime, which can be attributed to extra-educational factors.

The three other papers in the volume present conflicting evidence about the role of education in the over-all framework of equalizing policy instruments. Lindbeck concludes from the Swedish experiences, that "the effects on income distribution is depending more upon the distribution of education among different social groups than upon the total volume of education". On the other hand, Okner and Rivlin find that in the United States despite the increase in educational level and narrowing of educational disparities in the last 25 years, inequality in earnings has not narrowed. Presenting a report on the Netherlands, Tinbergen observes that "the number of university graduates is increasing rapidly, and this will contribute to a fall in inequality of incomes.

As several of the papers in Volume 2 suggest, education can be regarded as *one of the* equalizing policy instruments, and certainly not *the* policy instrument. For instance, as Lindbeck rightly concluded, "improved schooling may raise income, and higher income may increase both the ability and willingness to invest more in education; better nutrition and health may increase productivity, which may raise income, which may, in turn, improve the possibility of improving nutrition, health, education results, etc. Thus, by pushing policies in many different fields *simultaneously*, it may be possible to exploit what Gunnar Myrdal has often called

'circular causation', resulting in 'cumulative effects' and 'movement upwards of entire social systems for under privileged groups'.

These two volumes provide an excellent analysis of the educational system which imbibed in it all the social and economic inequalities and causing educational inequalities which, in turn, result in further income inequalities in the society.

However, these two volumes do not resolve the debate on the relation between education and inequality; on the other hand, they contribute to continuing the debate with more vigour. *Education, Inequality and Life Chances* is indeed a very rich addition to the literature on the highly exciting and expanding field of economics of education. The two volumes should be of great interest to educationists, economists and others interested in the current debate.

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Women Students in India

Women Students in India—Status and Personality.

SAVITRI SHARMA. Concept Publishing Company, New Delhi, 1979, pp. 172, Price . Rs 50.00.

THE PRESENT PUBLICATION is a Ph.D. dissertation submitted to Patna University in 1976 for which the author received assistance from several organizations including the UGC. Produced in seven chapters and with two appendices the publication is complete in every sense of the term. Each chapter carries a summary of the major finding and also a detailed bibliography. The survey of related literature reads well, only its sources are not properly documented. A few important references are also missing. For example, the researcher did not perhaps consult an NCERT publication on achievement motivation. Several other references which may have added to the merit of the publication have been overlooked. Similarly, she has been gullible enough to accept Jensen, e.g. she states 'Differences in intelligence are found among different races also, for example, the Whites are found to be superior to Negroes. The causes of higher IQs in

the upper classes are partly environmental and partly hereditary" (p.47). Such a statement brings no credit to her or her own people for her next statement could easily be that "Browns are slightly superior to Negroes and considerably inferior to the Whites", as though one's intelligence were dependent on the pigmentation of skin and not on grey matter which had been equally distributed by the powers that be.

It is also a matter of surprise that she continues to cite the obvious: "intelligence tests had a preferential bias in favour of the upper classes"... It may be said that it is not only one factor which determines the development of the personality traits; it is rather a combination of many factors... On the strength of studies conducted in the West she concludes without a shred of evidence coming out from India that "lower class parents are more democratic and consistent in their technique of child-rearing than others.

Her case study was limited to Magadh Mahila College, Patna and she used "due to a scarcity of locally prepared personality inventories the Hindi versions of Guildford-Zimmerman Temperament Survey, and Allport-Vernon-Lindzey Scale of values (1951)". She also constructed a socio-economic status scale including two variables, viz. education and income that play an important role in determining one's status.

Major findings of the study concern social, political and theoretical values. The most dominant value of the low group is theoretical and of the middle group theoretical and social. The three groups though not different in respect of different value scores, differ in respect of most dominant values. The overall comparison of the profiles of values indicated that except the upper class all classes attach importance to theoretical value. Additionally for the middle and the lower classes religious value is least important and for the upper class individuals aesthetic value is least important. In the present context political value stood third in preference with fourth and fifth being political and religious respectively. These are really interesting findings of the research study, though somewhat startling. There was an indication that the individuals of the upper class are more interested in science and arts, the middle group being more interested in science and literature and individuals of the lower class being interested in science and social work. Also interesting is the finding on the success model. Whereas the upper classes hold themselves responsible for their success, others from the middle and lower classes held God or Fate responsible for their attainments.

Essentially a readable work.

NEERJA SHUKLA, Lecturer, Non-Formal Education Unit, NCERT, New Delhi ☐

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A Perspective on the Education of Asian Children in Britain

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THE DEMISE OF Britain's colonial empire has resulted in quite fundamental social changes which could not be foreseen in the period between 1945 and 1948 when it became clear that Britain, like the Netherlands, could no longer remain an imperialistic power. Although Britain had been responsible for the forced migration of slaves from Africa to the Caribbean, and for the migration of workers from India to Africa and the Caribbean (and the lot of these workers was scarcely better than that of slaves, as Tinker (1974) has shown), it was not envisaged that large numbers of workers from the former colonial territories would actually undertake voluntary migration to the metropolitan country. This migration, to Britain, the Netherlands and France especially, is a European phenomenon of considerable sociological importance (Lowenthal 1978, Castles and Kosack 1973).

At first migration from the former colonial territories was unrestricted, but the vestiges of the ideology of colonialism remained in Britain, and an increasing reactionary lobby was successful in pressing restrictive immigration policies on both Labour and Conservative governments. Immigrant visas in recent years have been granted only to those with professional qualifications (particularly, to those from the Indian sub-continent) and, grudgingly, to refugees such as the Indian population expelled from Uganda in 1972 (Humphry and Ward 1974).

Recruits to semi and unskilled jobs which the indigenous British workers felt unable to tackle came before the strict immigration controls introduced between 1962 and 1967 from the West Indies, Pakistan and Bangladesh. Since 1967 it has been the dependents of these workers who have formed the bulk of immigrant populations to Britain. A specific migration to Britain has taken place from Gujarat and the Punjab. Workers from these areas are mainly in skilled and commercial posts, in

contrast to workers from Pakistan and Bangladesh who frequently work in factories, especially in the textile industry (Deakin 1970).

Because the immigrant groups are on average much younger than the indigenous population, they are much more likely to have families with young children; their fertility is also somewhat higher than that of indigenous families, and this has meant a rapid increase in the number of black and Asian children attending British schools. Immigrants and their families have settled in the major conurbations in London, the Midlands and West Yorkshire where both work and housing have been available. In these areas up to a third of all births are to mothers from the New Commonwealth countries of India, Pakistan, Bangladesh, Malaysia, Hong Kong, Africa and the Caribbean. In London, the figures for 1975 indicated that 23 per cent of all births were to New Commonwealth mothers (*Multi Ethnic Education* 1977). These proportions are likely to increase, given the age structure and fertility patterns of the immigrant populations. What this effectively means is that Britain is becoming an increasingly multiracial and multicultural society, and in schools in particular the cultural and ethnic mix, in terms of religious, cultural and racial backgrounds is very diverse.

These changes have posed challenges for British teachers and educational planners which they have not always been ready or willing to face. In this paper I will review some of the problems posed by multicultural education in Britain today, and some of the responses of the indigenous community.

Responses to Immigration

Government policy on immigration to Britain in the post-war years has ranged from *laissez faire* to the strict and often partisan control of certain immigrant groups. These vacillations of policy are reflected in public uncertainties as to what the appropriate attitude to immigrants should be. There has always been a hard core of racism in British society, which has advocated the suppression, control and eventual repatriation of all non-whites (Bagley 1978). But the largest sector of opinion, the middle ground, holds a broadly assimilationist policy, indicating formally at least, that immigrants will be accepted but only if they conform to the British way of life and give up their 'alien customs' of dress, language and religion. A liberal minority of the population hold a pluralist position, suggesting that Britain should tolerate newly arrived ethnic groups to the extent of allowing autonomy in spheres of dress and religion, which are basic individual rights; this group argues further that the new perspectives

which the immigrant groups bring are of positive benefit to British society, which is in any case based on an amalgam of many different cultures.

A paradox of the assimilationist policy is that it has not been carried through in a logical or non-discriminatory way. The most assimilationist group, the West Indians, come from a British-speaking culture, are Christians, and familiar with many British institutions, including an education system very similar to Britain's own. Yet the assimilationist goals of this West Indian group have been largely rejected, and they have suffered considerable discrimination in their search for higher level jobs. This is an especial problem for young West Indians who have been through the British educational system and are now, with little success, seeking jobs commensurate with their qualifications (Bagley and Young 1978). The same type of discrimination applies to young Indians who have all their education in Britain and who speak perfect English. For example, in a recent survey on graduates in engineering from universities and polytechnics in Leeds and Manchester, it was found that Indians who had received all their education in Britain still found great difficulty in finding employment, in contrast to their white peers (Ballard and Holden 1975). This continued rejection has created considerable feelings of alienation and resentment on the part of young West Indians, Indians and Pakistanis.

The dualities of the prevalent British attitude is well illustrated by a study of those immigrants from Pakistan who are Christians (Jeffery 1976). These migrants were refugees from a Muslim culture which had not, by and large, respected their Christian identity. They had assumed that in Britain which is a nominally Christian country, they would receive more equitable treatment. Ironically, this has not proved to be the case, and these migrants have not been treated as Christians; the British have failed to distinguish them from other migrants from Pakistan, and their assimilationist aims have been rejected. As a result they have tended to stress aspects of a Pakistani, rather than a Christian, identity.

This has been a general pattern for many immigrant groups: whatever their initial attitude to British culture, the British attitude has generally been one of critical stiffness and non-acceptance. The reaction on the part of the immigrant communities has been to withdraw so far as possible into their own resources, and indeed to re-establish religious and cultural traditions which were lapsing.

Language and the Teaching of English

For the children of immigrants from the Indian sub-continent, attending British schools for the first time, language was often a problem, and

different local authorities met the problem in different ways and with varying degrees of success.

In 1970 a survey of head teachers found that some 43,000 officially designated 'immigrant' pupils were unable to follow a normal school curriculum by virtue of language difficulties (Town Send 1971). These children were in the main from families from the Indian sub-continent, Malaysia, and Cyprus. The provision of language teaching at the time of the survey varied greatly between the local education authorities which served the ethnic minorities, from full-time language centres in seven authorities (in which the pupils were withdrawn temporarily from normal schooling in order to receive rapid instruction in the use of English), to part-time language centres in 12 local education authorities, full-time classes in the pupil's own schools (in 14 authorities), and part-time language classes in the pupil's own schools in 61 local education authorities. One local authority with a substantial minority of pupils from the sub-continent provided, as an act of policy, no special language teaching at all, arguing that pupils would rapidly acquire a knowledge of English through interaction with indigenous pupils.

One difficulty in establishing comparable standards between authorities has been the difficulty of establishing an objective standard of attainment in English, a problem which the National Foundation for Educational Research has been tackling for some years. The Foundation's report on the educational assessment of ethnic minority pupils was directed by Haynes (1971), who produced special materials by which the language and learning ability of pupils with immigrant parents could be assessed. Haynes assessed a large number of children on the performance scale of the Wechsler intelligence scale for children, and on the Goodenough draw-a-man test, in order to assess potential in the sphere of other areas of learning. These tests were found to be better predictors of ultimate performance in the classroom than were teachers' predictions. The teachers were relatively successful in predicting numerical ability, but were largely unable to predict abilities in the area of language and verbal ability. Haynes found too that Indian children were seen by teachers as quiet, well-behaved and to have positive attitudes to school, in contrast to indigenous children. Indeed problems of behaviour and motivation are common in indigenous children, especially in urban, working class areas of Britain.

This has presented a particular problem for teachers trained and experienced in Indian schools and now working in Britain who have found the lack of motivation on the part of British pupils difficult to understand. It does appear however that in a system of universal, free and

compulsory education a significant section of the population has little motivation to learn, and a negative, hostile attitude to school. There is indeed some potential conflict between the well-motivated and hard-working children of immigrant parents in schools, and the less motivated children of the indigenous working classes. Ironically, newly arrived immigrant groups are often forced to share the least desirable quarters of the city, and temporarily at least their children must share schools with the least motivated sections of the British working class.

Vyas (1977) has made a special study of the learning of English by Gujarat children attending London schools, and has devised a series of tests which measure facility in various language skills, including a learning Marathi test, and the Phatak version of the draw-a-man test. This test battery appears to be of value in predicting the particular needs of individual pupils for types of language and other educational instruction.

A detailed study of language proficiency in the multi-racial junior school (for children aged 7 to 11 years) has been made for the National Foundation for Educational Research (NFER) by McEwen, *et al.* (1975), in a study of 785 pupils in 127 schools in 42 local education authority areas. This study found that Asian children who spoke some English at home had a distinct advantage in terms of general language skills and scholastic achievement over those who had never or had hardly ever done so. Rather similar findings were made by Dickinson, *et al.* (1975) in another study of NFER, carried out in Glasgow. Dickinson, *et al.* who studied Pakistani children aged between 7 and 11 found that test performance and general achievement were related to the degree to which parents spoke English, and had some orientation towards British culture.

Culture and Cognition

There is some evidence of increasing acculturation in Asian families, the longer is their residence in Britain. This is reflected in the increased scholastic attainment of their children, especially in the secondary school sphere. Thus Durojaiye (1972) in a study in Manchester found that if the mother in an Asian family had a knowledge of English, this was particularly likely to be associated with an efficient command of English in her children, a necessary prerequisite for a high level of scholastic achievement, which many of the Asian children manifested.

The most comprehensive study of the relationships of acculturation, language and cognitive orientation has been made by Ghuman (1975) in an NFER study comparing English children with Punjabi children in Birmingham, with a second comparison of Punjabi children in Birmingham and in the Punjab. Ghuman's samples, boys aged between 9 and 11,

were carefully selected from representative schools in Birmingham and the Punjab. His test battery was comprehensive, and set out to measure not scholastic achievement as such, but more fundamental levels of intellectual functioning, including conservation of weight and area (tests derived from Piaget's theory of mental abilities); tests of equivalence (derived from Bruner's theory); Vygotsky blocks; the Wechsler block design test; the coloured progressive matrices; the Goodenough draw-a-man test; and measures of ability including spoken and written English, comprehension and arithmetic; and also a comprehensive measure of attitudes to school and learning. This material was supplemented by interviews with parents. It was found that on all these tests the Punjabi Sikh boys in Birmingham performed at a similar level to the English children. The cultural context which determined their thinking was largely the same, and so was their intellectual and cognitive orientation to the world. What was most striking in these results is that the cognitive functioning of the Punjabi boys in Birmingham was much closer to that of their English peers than it was to the cognitive functioning of boys in the Punjab.

Ghuman explains these differences by the fact that in the Punjab, the boys he tested lived in a rural environment in which the social system is based on face to face interaction, and the network of relationships is limited and the communication is mostly direct. As a consequence there are relatively fewer demands placed on the children to use abstract styles of thinking.

There is very little of what Bruner calls contingent dialogue between the child and the adults in his family. The children are treated as receptacles which are to be filled with the social and elementary technical know-how. The community in the Punjab, according to Ghuman, maintains a strong belief in corporate life; social conformity is prized, and deviants are rigidly controlled through social sanctions. The type of training to which the children are subjected is not conducive, according to Herman Witkin's scheme, to analytical and independent thinking. Thus Ghuman found the rural Punjabi boys in his study to be "subdued in their attitudes and concrete, global and synthetic in their cognitive style". Because of the highly specific division of labour, knowledge and cognitive orientation is geared to the particularly technical or social role which the individual has to perform in life, rather to a general set of cognitive and intellectual skills. In contrast, children in the British education system, including the children of Punjabi migrants in Birmingham, receive an education which is intellectually much broader than in rural India, and education which prepares pupils for a wide variety of roles in society.

The 10-year-old Punjabi boys in Britain had little difficulty in objective analysis of the perceptual fields. They had well developed spatial and general ability as assessed by the wisc block design test. They could competently analyse two-dimensional design forms and were able to re-structure the same design forms when working three-dimensionally ; this ability was conspicuously absent in the indigenous Punjabi sample. The responses of the Birmingham Punjabi boys on the equivalence test showed that they preferred to form their groups on functional and nominal attributes, and used superordinate rules to structure their groupings. Equally, their performance also showed that they preferred to use sentences as opposed to labelling and pointing modes to explain their reasons for their groupings.

As far as the Vygotsky test is concerned (a test involving sorting 22 wooden blocks of varying colours, shapes, heights and sizes in relation to verbal cues) it is evident that a high proportion of the Punjabi boys in Birmingham were capable of forming concepts with the help of cues. Their general achievement level on Piagetian tests showed that these boys were not led by surface qualities of the objects, but were capable of looking for deeper relationships. The indications were that in the majority of cases (62 per cent) the boys had acquired the ability to think with an internalized, reversible and coordinated action system which in Piaget's theory is designated as a stage of concrete operations. In their answers on these tests, Ghuman reports, they were far more articulate than the Punjabi boys in the Punjab. The children of Punjabi migrants to England were lively, inquisitive and free in their conversation and uninhibited in demeanour :

At times it was difficult to believe that the immigrants belonged to the same ethnic groups as the boys in the Punjab... The British Punjabi boys think at a more abstract and analytical level, have well developed spatial ability and tend to use language to structure and organize their experiences.

The British Punjabi group were similar in scholastic level to their English peers too, in respect of written English, and various tests of arithmetic. No differences were found in the attitudes to school and learning of the children or their parents in the two Birmingham groups. We can see that so far as these Punjabi children are concerned, the British educational system has had some rather powerful acculturating experiences

The Punjabi parents in Birmingham tended to live in nuclear rather than extended families ; many celebrated festivals such as Christmas,

listened to English music, and had English friends, and there were many pressures, not least from the children themselves, for the parents to treat their children as English parents did. The children themselves were significantly more likely than their parents to have English friends, and there is clearly pressure from the younger generation of Asian immigrants (indeed, many have been born in Britain) for their parents to adopt British standards with regard to socialization and control of activities. At the same time, there was no falling off of religious practices amongst these Punjabi immigrants, and over 90 per cent attended the Sikh temple regularly, and celebrated various Indian festivals; but only 38 per cent of the children attended a special Punjabi school on Sundays.

However, earlier trends for the children to Anglicize their Punjabi names and to adopt English hair styles, and to resist the wearing of the turban, seem to have been reversed in recent years. This is in part a reaction to hostile reactions on the part of a section of the British population to the continued practice of the Sikh religion, and the wearing of turbans. Some employers, including the transport authority in Birmingham at one time refused to employ Sikhs wearing turbans. But there is no better way to strengthen a religious belief than to persecute it, and religious observance by the Punjabi community is clearly a major factor in their continued identification as a separate ethnic group.

What is emerging is a population who have undergone considerable psychological acculturation—in cognitive terms many of the migrants now think and orient to the world in the same terms as their English peers. But they retain a Punjabi identity, and religious beliefs and traditional cultural practices are still vitally important in giving the immigrant group a feeling of security in the face of a society that is still often hostile.

Our research on Jamaican children, in Jamaica and in London, has yielded rather similar results to the studies of Ghuman on Punjabi children (Bagley, Wong and Young 1977). Our focus has been on what Witkin calls 'field dependence', which is measured by the embedded figures test. This measures the ability to orient oneself in the face of disorienting stimuli; or the ability to perceive objects separate from their complex background. This ability is known as cognitive style, and is defined by Lloyd (1972) as being one of the three basic types of intelligence (the other two basic types being psychometric intelligence, and Piagetian intelligence). The most interesting facet of field dependence-independence is its wide range of correlations in the area of social behaviour and personality. Field dependence is associated with a child's early global conception of his body, which is replaced—at differential rates and at differential levels under varying social and cultural conditions—by a

more articulated body concept, with an impression of the body as having definite limits or boundaries, with its parts being discrete and interrelated in a definite structure. Progress toward more articulate experience of the self also shows itself in growing awareness of needs, feelings and attributes which the child identifies as his own and as distinct from those of others, that is, he develops a sense of separate identity which implies experience of the self as segregated and structure or, in other words, articulated.

A number of studies reported by Witkin and his colleagues have shown field dependent (FD) subjects to be more likely to accept the direction of others, to be less autonomous in play, to be more group dependent, and to be more conforming, more likely to change attitudes in response to authoritative sounding communications. Berry (1977) in a cross-cultural study has found that the Temne of Sierra Leone were more FD than the Eskimo or the Scots, differences attributed to child-rearing methods between these cultures. Dawson too has found that the Temne, who undergo severe discipline and limitation of independence as children, are more FD than the Mende, also of Sierra Leone. These differences are clearly due to differences in patterns of socialization, with less strict pattern and more separation from the mother at an early age leading to a more differentiated, or less field dependent cognitive style.

These propositions have been supported by a considerable amount of cross-cultural work in cultures such as the Netherlands, Italy, Mexico, Guatemala, Korea and Hong Kong. Field dependence appears to be related to a traditional cultural in terms of lack of differentiation of roles, socialization for respect of adults, and dependence on adults, minimal formal educational experiences, and an agricultural rather than a hunting economy. Hunters however apparently need to develop field independent skills which facilitate the search for game.

Our fieldwork in Jamaica indicated a type of society with an ecology and a socialization style which was particularly likely to foster field dependence and our investigations with samples of 10- and 11-year-old children found this to be so in children of both African and Indian descent, children of immigrant Jamaican parents whom we investigated in London schools had levels of field dependence and patterns of cognitive style which were similar to those of their English peers. Measures of socialization on the part of the parents—Jamaicans in Jamaica, Jamaicans in the UK, and English parents in the UK indicated that Jamaican parents who had migrated were adopting styles of socialization which were appropriate to fostering cognitive skills in the new culture in which they found themselves.

One of my research students, Harshad Vyas, is doing further work on cognitive style, comparing cognitive style in relation to parental socialization in children of Gujarati migrants in New York and London, with that in children from rural families in Gujarat. The hypotheses that he is testing are that migration to Western, urban cultures will be associated with a change in cultural and social practices which will be reflected in different kinds of socialization, and ultimately in different levels of cognitive style; but at the same time, the migrant Gujarati families will retain many facets of their original culture.

We may speculate that Asian children passing through the British educational system come to acquire not only British styles of cognition, but also many of the attitudes and values of the society in which they have settled. A systematic investigation of these possibilities has been carried out by Taylor (1976) for the NFER in an investigation of Punjabi boys in their adolescent years, most of whom had grown up in the northern English city of Newcastle on Tyne. Taylor titled his study, *The Half-Way Generation*, implying that these young Punjabi Sikhs, Muslims and Hindus, stand half-way between traditional Punjabi culture, and British culture. In many ways the study bore out this supposition. The youngmen in Taylor's study were now fluent in English, although they would speak Punjabi at home with their parents. In school they were strongly motivated to achieve, and performed at a higher scholastic level than their English peers. The parents had always had the intention of returning to India once their economic goals had been realised. But with the passing of years these goals of return became vaguer and vaguer, and although a strong psychological orientation to the Punjab was retained, and holidays may be taken there, it is clear that these immigrants, like the large majority of Commonwealth immigrants are in Britain to stay.

In a comparison of the cultural assimilation of different religious groups among his Punjabi sample, Taylor found that Hindus and Sikhs had made the most cultural transition, while Muslims had made very little. The adolescent boys in Hindu and Sikh families, for example, quite often had English girl friends in the youth clubs which they often attended, but this was less likely in the case of Muslim youngsters. But all of the respondents said they would defer to their parents' wishes for a marriage partner within their own community. We may note however that although intermarriage rates in the younger generation are still low in the Muslim population, in those of Hindu background intermarriage rates are quite high—some 20 per cent of all new marriages now involving an Indian partner also involve a European partner [Bagley (in press)]. What appeared to be happening to Taylor's respondents was that they did

not want to give up their Punjabi identity; rather, they wanted to liberalize the traditional village and family regime. The second generation, while accepting many English cultural standards, still retained a strong family loyalty. Interethnic marriages usually involve an Asian male and an English female, and often in such marriages it is the English girl who will defer to many of the cultural standards of her new family.

Thompson suggests that the Punjabi Families in his study are likely to follow the pattern set by Jewish immigrants to Britain earlier in the century – a pattern of ‘out and up’. The second generation are doing well in school, and many will acquire technical and professional qualifications. They are already moving out of the areas of poor quality housing in which their parents had, perforce, to settle into areas of good housing. If racial discrimination prevents the entry of these qualified youngsters into professional roles with existing companies, they are quite capable of setting up their own practices or companies, and there is already evidence of substantial entrepreneurial activity by the Asian immigrants.

Migration and Mobility

In 1972 some 30,000 Asians in Uganda were forced to migrate to Britain (Swinerton, *et al.* 1975). This group, who settled largely in London and in Leicester, already had well-developed entrepreneurial skills and have been particularly successful in setting up small and medium sized businesses in manufacture and retailing. They too are an upwardly mobile group. In East London Bengali immigrants have settled in the self-same houses and in the same clothing and textile industries which Jewish immigrants occupied and worked in the early part of the century. Like their Jewish predecessors, these immigrants are often misunderstood and indeed persecuted by disadvantaged members of the indigenous community, not least because of their hard work and ability to rise economically and socially.

Successive British governments, in a state of alarm that has been more racist than rational, have placed increasing curbs on migration to Britain from the New Commonwealth. This has meant that it is now virtually impossible for an adult male to obtain entry to Britain in order to work; only wives, children and certain other dependents are allowed to join those already here. But the administrative processes by which visas are granted for entry have meant that families have been separated, sometimes for years. This is a cause of great distress to numbers of migrant families who still remain divided because of the arbitrary or bureaucratic operation of admission procedures by the British authorities (Humphry and Ward 1974).

The number of Asian children now coming to British schools speaking no English at all has greatly declined, and the earlier concern over methods of language teaching has been modified. Yet herein lies another dilemma for the immigrant community. Anxious for their children to do well in the British educational system, many Asian parents have made sure that their children speak English well before entering formal schooling at the age of five. But now some children speak their traditional language imperfectly or not at all, and cannot write in their traditional script. This has been accompanied by identity confusion in some Asian children; it is a matter of profound distress to a child of Asian immigrant parents to discover that he is Asian only when he is rejected by some of his peers at school because he is 'coloured'. In extreme cases the child will actually reject his parents because they are in his eyes coloured : here, complete identification with the norms of English peers has resulted in a rejection of himself.

Ahmed (1978), writing of her clinical work with young Asians in Britain, observed that :

Teenage girls have presented problems as crises of culture conflict, but now younger Asian girls of 11 and 12 are expressing contempt for their parents, their colour, and their culture, as children of West Indian origins have been known to do for a much longer time. When a girl is ashamed to walk beside her mother, or speak in her mother tongue, and express dislike of all 'pakis', including a refusal to see her social worker on discovering that the social worker was Asian, should not we term that as a crisis? Clearly, these are deep problems of identity, not just instances of adolescents making a bid for more freedom.

Two Cultures

The problem of identity in young Asians as they move uncertainly between two cultures is now of increasing concern to educationists and social workers in Britain. There is now more resistance to the simplistic ideas of assimilation or integration which pervaded much official British thinking in the 1960s. Although this school of thought remains, and the rejectionist view also survives in an increasingly racist form, the idea of plural accommodation reflected in a multicultural education is now gaining ground.

Stimulus in this direction has come not from Britain but from the member countries of the European Common Market, of which Britain is now a member. Countries such as the Netherlands have long practised a policy of pluralism, giving particular attention to the cultural autonomy

to be magnanimously proud of their own language and culture, while tolerating and respecting the culture of other minority groups with whom they come in contact.

The Issue of Religion

A major point of contention between immigrant groups and education authorities in Britain is that of religion and religious instruction. At first the British educational authorities were intolerant of the needs of religious minorities such as Muslims, for a particular type of education, including a special diet in school, the separation of the sexes in adolescence, and instruction in the Islamic faith. Some accommodation to these needs has been made by many local education authorities in Britain, but the pattern is uneven between different authorities. In Bradford, for instance, some Muslim parents prefer to send their daughters to Pakistan to be educated, rather than allow them to attend co-educational schools, which have also in the past been intolerant of the practice of wearing shalwars, sometimes forcing Muslim adolescent girls to wear dresses.

The movement over time has been one of grudging accommodation to minority needs, and in the sphere of religious instruction new syllabuses are now being implemented in some areas which teach about 'world religions' rather than Christianity as the one, true religion. Nevertheless, there is deep dissatisfaction on the part of Islamic leaders in Britain, and the practice of parallel schools which give instruction in traditional religion, culture and language is growing (Iqbal 1974, Ahmed 1972). These schools meet in the evenings and the weekends. In Southall, in London for instance, a special part-time school for Sikh children gives instruction in Sikhism as well as teach Punjabi to an O-level syllabus which is now accepted as relevant for admission purposes by all the major Universities in Britain.²

For many years some Christian denominations, notably the Church of England and the Roman Catholics have run their own schools, with financial support from the state, as they are allowed to do by the 1944 Education Act. Jews too have their own full-time schools, supported by State Funds.³ These examples have interested recent immigrant communities, who see these schools as precedents for full-time schools with a largely religious foundation. Dr. Mohammed Iqbal, a leading Muslim scholar in Britain and a writer on educational affairs has argued vigorously

²*Times Educational Supplement*, 3 March 1972

³*Education for Cultural Pluralism*, London: World Jewish Congress, 1973, and R. Newell, Defining the role of Catholic schools in a plural society, *The Times*, 25 July 1977

for the establishment of such schools (Iqbal 1977). He points to the case of Sydney Stringer School in Coventry, a large secondary school in which only 200 of the pupils are from the indigenous, white community; the remainder, some 1,400 pupils are from ethnic minority groups. The most numerous of these groups are from Muslim, Sikh and Hindu communities. The director of this school, according to Iqbal (1978), has expressed the view that 'Westernization' of these religious groups will be the solution to the general problems of adaptation, including employment :

In terms of job opportunities, 'Westernization' may be a solution. But what about the secularization, irreligiousness, materialism, pseudo-individualism and erosion of moral values which go with it ? Leading members of the Muslim community in Britain (one million to 1,500,000 strong) are only too well aware of the heavy price the community will have to pay for gains at the cost of their faith, the religion of Islam.

The solution, as Dr. Iqbal sees it, is the setting up of separate, fulltime Muslim schools, and there are at present plans to do this with the aid of finance from Pakistan.⁴ An interesting precedent for this kind of school was set by the establishment in London in 1972 of a school for the children of Spanish workers, with the aid of finance from the Spanish government. This school gives the children instruction in Spanish and English, and the traditional culture and Catholic religion of Spain. At present, a large number of part-time Islamic schools now operate in large British cities, giving instruction, usually in the evenings, in Islam and Arabic. But without major financial support from the state, these schools are unlikely to be able to operate on a full-time basis.

British policy at the present time compares unfavourably with that of the Netherlands, where the authorities will give financial support for a separate school for any religious persuasion, provided a group of 200 to 300 pupils is offered as clientele.

In Britain, where there is no traditional policy of supporting cultural pluralism as there is in the Netherlands, financial support from the state for schools for minority groups is notable for its absence. It is clear that if the goals of social justice are to be realized, the policies of cultural pluralism and multicultural education need acceptance by a variety of individuals and institutions concerned with educational planning.

The Second Generation

It appears that there is some conflict between the children of Asian

⁴*Times Educational Supplement*, 1 Nov. 1974, 31 Jan. 1975 and *The Times*, 16 Jan. 1978

immigrants and their parents over appropriate standards of behaviour and orientation to the world. This is specially true of daughters in Muslim and Sikh families. While the majority of these young girls conform to the traditional patterns of family life and accept parental authority in such areas as choice of marriage partners, style of clothing, boy friends, and so on, a significant minority who are articulate, educated and vocal are establishing a claim to independence from traditional patterns. Anwar (1976) has suggested that the conflicts inherent in these desires for independence may lead to personal strain, sometimes reflected in nervous breakdowns of various types.

Some writers, such as Hill (1972) have attributed these conflicts to the kind of socialization these young girls received in school, from their English peers, and from the mass media all of which may dispose them to conformity to English norms. These norms as Iqbal (1977) has observed, are for many Muslim parents, lamentably permissive. Particular conflicts are likely to arise when daughters of Muslim families want to proceed to College or University for higher education, whilst their parents wish them to enter an arranged marriage. Given the findings which I have cited above which showed that the basic cognitive orientation of Asian children in Britain has changed fundamentally from that of children in India and Pakistan, it is perhaps not surprising that there is now some ambiguity about value orientation in the children of Asian immigrants in Britain.

The Asian girls themselves point out that pressures for the liberation of women are not confined to Asian girls in Britain, but are part of a growing movement in Asian and Arabic cultures. Ahmed (1978) has pointed out too that the acute crises of identity and self-confidence which some Asian girls in Britain suffer may be caused by the internalization of certain racist values which the major society holds about minority groups. As part of the ideology that immigrant groups must assimilate with the British population the view is also held, implicitly or explicitly, that Asian culture is inferior. If young Asians internalize these views they are unlikely to be able to respect the culture of the parents, but at the same time, they can no longer respect themselves. Again, the policy of pluralism seems to be the answer. Arguments about the liberation of women must, one supposes, take place inside the immigrant communities and on the same terms as that debate takes place in India and Pakistan. It is unfortunate, and indeed in some cases tragic, that this debate has become enmeshed with wider ideological issues surrounding the adaptation of immigrant groups to British society.

Teachers and Multicultural Education

If a policy of multicultural education is to be successful, it must be supported by properly trained and adequately motivated teachers. Teachers need, for example, to have considerable knowledge of and respect for the traditional cultures from which their pupils come.

There are many difficulties here. Teachers are likely to share the prejudices held by the majority of the population, and research on the attitudes of teachers by Brittan (1976) of the NFER has found this to be so. A number of special courses have been designed by colleges and departments of education in Britain which give an orientation in multicultural education, and these, while being of excellent quality, are unfortunately still rather rare courses (Shillan 1975). Perhaps the most ambitious course is that for the Bachelor of Education degree of the City of Birmingham Polytechnic which offers a unique training for teachers in multicultural education. This course involves a study of the historical background and present situation of ethnic minorities in Britain; the concept of multicultural education, teachers and children in multicultural schools, language and minority groups in a multicultural society; and curriculum needs in a multicultural society.

The need for such training is well-illustrated by work carried out by Dr. G. K. Verma and myself (1978) on the evaluation of curriculum innovation in the field of multicultural education. We found that the use of materials aimed at increasing the pupils' understanding and tolerance of each other's cultures was only likely to be successful in the hands of teachers who were themselves sympathetic to the concept of multicultural education. Our experience, and that of others, shows that only a minority of teachers hold liberal views in this field.

One obvious solution to this problem would be to recruit more teachers from immigrant and minority groups. Many immigrants have training and experience as teachers in the Asian sub-continent or in Africa, yet many of these are not employed in schools, for various reasons. Some do not want to take on the arduous task of teaching the often rebellious indigenous pupils in inner city areas; but many have been unable to obtain jobs as teachers because local education authorities have deemed their qualifications unacceptable. Even those who have completed additional courses at British colleges have found considerable difficulty in obtaining employment⁵. The reasons for this are not clear, but one factor may be the conservatism and indeed the prejudice of

⁵The *Guardian*, 8 Sept. 1973 and *Times Educational Supplement*, 3 Oct. 1975, 19 Sept. 1975 and 15 Aug. 1975

administrators and some headmasters in British schools (Jackson 1974, 1975).

Conclusions

In this paper I have tried to review the complex themes which contribute to a consideration of the education of children of Asian immigrants to Britain, and in particular, those from the Indian sub-continent.

The first point to be made is that the attitudes of the indigenous English population to the immigrants in general, and to the role of education in particular, are often confused and are of various types. Three kinds of attitude can be identified—a rejectionist view, an assimilationist view, and a view which advocates cultural pluralism and its counterpart of multicultural education. The assimilationist view has held sway in the past, and still dominates much thinking in English education and social policy (Bagley 1973). The assimilationist view incorporates the assumption that immigrants and their children must, if they are to be accepted by the host society, conform to the standards and norms of British society. But often there has been an implicit or indeed explicit racism in this view insofar as it sees the culture, religion and tradition of the immigrant communities as undesirable. Ironically, those communities such as West Indians and Christians from Pakistan who have had assimilationist aims have often found their aspirations for equality of treatment with the host population have been rejected, in consequence, they have experienced considerable feelings of alienation.

In the 1960s and early 1970s the major problem of the education of children of immigrants was, in the eyes of British educational administrators that of language and the learning of English. Special facilities for the learning of English appear to have been largely successful, and Asian children are now achieving at a higher level, on average, than English children. The degree to which the educational system has been successful in altering the basic cognitive orientations of both Asian and West Indian children can be judged from the fact that comparisons of children from ethnic groups in England with both indigenous English children with those who remain in, say, India or Jamaica, show the profound alterations in cognitive thinking and cognitive style which the English educational system has wrought. Children of immigrants, it can be said, now think and interpret their world in cognitive terms in a manner very similar to their English counterparts.

These apparent successes of the assimilationist policy have not been without their costs for the immigrant communities. Children from immigrant families have inevitably come to understand, if not always interna-

lize the value orientations of their English peers. Sometimes these values have been internalized and traditional ones rejected, at some personal cost to the individuals concerned. Not only have they sometimes been brought into conflict with their families over standards of dress, behaviour, and relationships with the opposite sex, but sometimes also they have suffered acute identity crises which have involved the total rejection of their families.

In a changing climate in which policies of multicultural education come to the fore, the change in cognitive orientation of the children of immigrants could have positive functions however, in that their new-found cognitive acuity could help them to learn about and distinguish between different cultural standards without compromising their own position. Thus they may develop a dual cultural identity, with orientations and standards of behaviour which are appropriate for both the cultures which they move between.⁹

Clearly, the primary loyalty should be to the traditional culture, religion and language in a context in which the immigrant group nevertheless makes a significant economic and cultural contribution to the society in which they live. The example of the Jewish community in Britain is an important one in this respect, (Krausz 1971) and there is already evidence of some Asian communities both in economic and geographical terms (Taylor 1976).

The EEC initiatives, matched by some authorities in Britain, such as the Inner London Education Authority (*Multi-Ethnic Education*, 1977), for ethnic minorities to foster their traditional culture and language as a primary goal, are welcome. There is a clear precedent here in the established Welsh practice, in which the minority language is taught as the first language by parents to the young child, who will learn English as a second language when he attends infant school. The policy of multicultural education is one of great promise which has yet to be fully realized, and requires much investment, in education materials and training, and much goodwill on the part of educational planners, teachers, and public alike. Whether such a policy can be successful must wait for a future appraisal.

⁹This was indeed the case in a sample of Asian children studied in Glasgow—G. Jahoda, S. Thompson and S. Bhatt, Ethnic identity, and preference among Asian immigrant children *European Journal of Social Psychology*, 1972, 2, 19-32

References

- Ahmad, I. Respect for Muslims. *Times Educational Supplement*, 4 August 1972
- Ahmed, S. Asian girls and culture conflict. *Social Work Today*, 1978, 9, 14-16
- Anwar, M. Young Asians between two cultures. *New Society*, 1976, 38, 563-565
- Bagley, C. *Social structure and prejudice in five English Boroughs*. London: Institute of Race Relations, 1970
- The education of immigrant children : A review of policy and progress. *British Journal of Social Policy*, 1973, 2, 303-315
- The Dutch plural society : A comparative study in race relations*. London: Oxford University Press, 1973
- Inter-ethnic marriage in Britain and America. *Sage Race Relations Abstracts* (in Press)
- Verma, G., Mallick, K. and Young, L. *Personality, self-esteem and prejudice*. Farnborough: Saxon House, 1978
- Young, L. Alienation and identity in young West Indians in Britain. In Verma, G. and Bagley, C (Eds.) *Race, education and identity* London: MacMillan, 1978
- Wong, J.S.Y. and young, L. A comparative study of cognitive style and socialization in 10-years-olds in England and Jamaica. Paper given to the Second Annual Conference of the Society for Caribbean Studies, University of Surrey, April 1977
- Ballard, R. and Holden, B. The employment of coloured graduates in Britain. *New Community*, 1975, 4, 325-336
- Berry, J. Nomadic style and cognitive style. In H. McGurk (Ed.) *Ecology and culture*. North Holland Publishing Co , 1977
- Brittan, E. Multi-racial education. *Educational Research*, 1976, 18, 96-107
- Castles, S. and Kosack, G. *Immigrant workers and class structure in Western Europe* London : Oxford University Press, 1973
- Deakin, N. *Colour, citizenship and British society*. London: Panther Books, 1970
- Dickinson, L., Hobbs, A., Kleinberg, S. and Martin, P. *The immigrant school learner*. Windsor: National Foundation for Educational Research, 1975
- Durojaiye, S. Social context of immigrant pupils learning English *Educational Review*, 1972
- Ghuman, P. *The cultural context of thinking : A comparative study of Punjabi and English boys*. Windsor. National Foundation for Educational Research, 1975
- Haynes, J. *Educational assessment of immigrant pupils*. Windsor: National Foundation for Educational Research, 1971
- Hill, B. Daughters of the temple. *Times Educational Supplement*, 1 September 1972
- Humphry, D. and Ward, M. *Passports and Politics*. London : Penguin Books, 1974
- and———*Divided families* Birmingham Community Development Project, 1974
- Iqbal, M. Muslims in a Christian culture. *Times Educational Supplement*, 18 December 1974

EDUCATION OF ASIAN CHILDREN IN BRITAIN

- Iqbal, M. Education and Islam in Britain—A Muslim view *New Community*, 1977, 5, 397-404
- East is east ? *Times Educational Supplement*, 4 April 1978
- Jackson, M The DES didn't seem to know much about us. *Times Educational Supplement*, 18 July 1975, 8-9 and Recruiting minority group teachers. *Teacher Education and Community Relations*, 1974, 11,1
- Jeffery, P. *Migrants and refugees : Muslim and Christian Pakistani families in Bristol*. London· Cambridge University Press, 1976
- Krausz, E. *Ethnic minorities in Britain*. London . MacGibbon and Kee, 1971
- Lloyd, B. *Perception and cognition*. London· Penguin Books, 1972
- Lowenthal, D. *New Community*, 1978
- McEwen, E , Gipps, C. and Sumner, R *Language proficiency in the multi-racial junior school* Windsor : National Foundation for Educational Research, 1975
- Multi-Ethnic Education*. London Joint Report of the schools Sub-Committee and Further Education Sub-Committee of the Inner London Education Committee, November 1977
- Prager, P. Minority languages *Times Educational Supplement*, 20 May 1977
- Price, E. *Bilingual Education in Wales, 5-11* London: Methuen Evans Educational 1978.
- Shillan, D. A diploma in 'education for a multicultural society'. *New Community*, 1975 4, 346-348
- Swincron, E , Kuepper, W and Lackey, G *Ugandan Asians in Britain*. London: Croom Helm, 1975
- Taylor, J *The half-way generation*. Windsor : National Foundation for Educational Research, 1976
- Tinker, H. *A new system of slavery· The export of Indian labour overseas 1830-1920*. London · Oxford University Press, 1974
- Townsend, H. *Immigrants pupils in England . The L.E.A. response*. Windsor : National Foundation for Educational Research, 1971
- Verma, G. and Bagley, C. The evaluation of three strategies in teaching about race relations In Verma, G, and Bagley, C, (Eds.) *Race education and identity*. London: MacMillan, 1978
- Vyas, H. *An investigation in the factors governing the learning of English by Gujarati-speaking children in London*. London : Faculty of Education, Polytechnic of North East London, 1977
- Witkin, H. and Berry, J. Psychological differentiation in cross-cultural perspective. *Journal of Cross Cultural Psychology*, 1975, 6, 4-73 □

A Research Study about Teachers' Perceptions of Job satisfaction

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LITTLE EVIDENCE APPEARS, positively or negatively, concerning teacher perception of job satisfaction in the areas of work and supervision within the organization of the school. Job satisfaction appears to be a measurable human characteristic, and it is important to people in their work (Ronan 1970). Long-term studies of this type are few because of the lack of instruments available for indexing an employee's job perception.

The question which this study addresses is : How do teachers perceive job satisfaction in relationship to work done and supervision received from the principal ? This study describes differences in teacher perception of their work and of their supervision. In answering the question posed, this article reports its findings in three sections which will be treated mutually exclusive even though they are interdependent within the education milieu. Biographical data describe the participants and reveal the diversity of the school districts in this research. The teachers' perceptions of work analyses many aspects of their job in comparison with the biographical data. The final section in this article reports the quality of the principals' supervision from the teacher's perspective.

Studies of job satisfaction have often generated observations which state that pay is the most important single motivator in an organized society (Lawler 1968). There is now evidence that individual characteristics such as differences in personality, motivation, and expectation operate to obscure many of the commonly generalized relationships between satisfaction and general group attitudes (Carroll 1969). This approach assumes that job satisfaction can be predicted if the presence of

a variable in the work situation leads to satisfaction and that its absence will lead to job dissatisfaction.

In the field of education there has been little research conducted on job satisfaction. Those educational studies which have been conducted revealed no significant correlation for teachers among satisfaction, educational level, and degree held (Hogan 1968, Hogland 1968, and Roehm 1966). The opposite viewpoint holds that workers with higher educational degrees or accomplishments tend to be more dissatisfied (Volmer and Kinney 1955).

It is apparent from the reciprocating views of those investigating job satisfaction that a sound theory has not been accepted due to inconsistency and lack of knowledge. This article will attempt to add to the existing body of knowledge in the area of job satisfaction.

Collection of Data

This research was accomplished by surveying 682 teachers selected from 41 Central Texas school districts. The instrument used to evaluate teacher perception of job satisfaction and supervision was the Job Descriptive Index (JDI). In this study, job satisfaction is defined as the feeling a person has about his job repeated through his affective responses to the facets of the job situation. These feelings are associated with the perceived differences between what is expected as a fair, reasonable return, and what is experienced in a given situation.

The JDI has been validated using discriminatory and convergence techniques (Siegal 1971). The JDI is the result of a study to develop, validate, and establish norms for job satisfaction, and was the result of the most careful and definitive research programmes carried out to understand the construct and measurement of job satisfaction (Allen 1967). The JDI has shown consistent correlations above .70 with other measures of job satisfaction (Buros 1972). The JDI measures five essentially orthogonal areas of job satisfaction: (i) work itself, (ii) pay, (iii) promotion, (iv) supervision, and (v) co-workers. Each facet is measured as a continuous variable. This paper addresses two areas of job satisfaction: work and supervision.

JDI Predictability Coefficient

The relationship of dependent and independent variables was paramount to this research when attempting to determine the predictability factors among variables, within and between, two sets of data. The canonical correlation was selected as the most informative and expedient

statistical test to perform the task of selecting the variables in the JDI which would be the best predictors of teacher satisfaction. This test also allows the researcher to determine the predictability factor of any set of data, as a single correlation, when compared to any other set of data in the research.

The canonical relationship studied in this research was a comparison between fourteen elements of the biographical data base of the JDI and the five subtests of the JDI. The first set of canonical coefficients analysed the elements of the biographical data base. The results of these tests revealed significant canonical coefficients between 0.9991 and -0.7213. The best predictors emerging from these analyses were: teacher salary (0.9991), teacher contract (-0.7213), teacher total student load (0.6593), teacher age (0.4511) and the sex of the teacher (0.4225).

The comparison set of significant canonical coefficients revealed the best predictors of the JDI in this data set, as perceived by teachers were: work (0.6883), pay (0.9127), supervision (0.4714), and perception of co-workers (-0.9298).

The canonical correlation comparison between the biographical data and the JDI revealed a moderately high coefficient of 0.5310. The results of this analysis appear to have indicated that the best predictor of teacher satisfaction was encompassed in their perception of work, pay, and supervision.

Teachers' Perception of Job Satisfaction

Teacher Description

Teacher perception of job satisfaction was tested using the five sub-tests of the JDI. In order to determine demographic data about the respondents to the JDI a 14-item biographical data base was established for each participant.

This study includes school districts with average daily attendance of 233 to 20,000 students. The mean district size based on average daily attendance was 3,514 students. The campus size ranged from 188 students to 1,400 students with a mean campus size of 597 pupils. This description reveals the broad-based population studied.

The sample population of teachers revealed a mean age of 35.8 and was composed of 75.4 per cent females. The study disclosed that 77.5 per cent of the teachers sampled were married, 14.3 per cent single, 6.2 per cent divorced, and 2.0 per cent widowed. The total population had a mean total teaching experience of 9.8 years and a mean district tenure of 6.7 years. The average teacher in this study had an average class size of 23.8 students and a total class load of 95.9 students per day.

TEACHERS' PERCEPTION OF JOB SATISFACTION

Table 1 contains the biographical data base drawn from the participants in this study.

TABLE 1
TEACHER BIOGRAPHICAL DATA BASE
N=682

<i>Variable</i>	<i>Mean</i>	<i>STD Error</i>	<i>STD Dev.</i>
Age	35.837	0.432	10.869
Total Experience	9.774	0.343	8.503
Tenure Experience	6.628	0.316	7.451
Salary	\$11,485	250.6	.5849
Total Load	95.918	3.021	73.14
Actual Class Size	23.815	0.373	9.223

The respondents revealed that 77.5 per cent held the bachelor's degree and 52.9 per cent were teaching in grades 7 through 12. The study also indicated that most teachers (71.9 per cent) were employed on a one-year contract. This study indicates that 36.6 per cent of the participants were teaching in the elementary school, 15.4 per cent taught maths, or science, 12.0 per cent taught language arts courses with social studies (7.1 per cent), special education (7.5 per cent), and vocational education (7.1 per cent). The vast majority of teachers in this study taught in departmentalized (41.1 per cent) classrooms and self-contained (35.0 per cent) learning situations.

The biographical data base appears to indicate that teachers in this study have been part of the profession for a significant number of years, are significantly mature in age to be effective with students, and have class loads and pupil loads which are consistent with present educational practices. The entire data base lends itself to a common understanding of the type of teachers involved in determining the perception of the job of teaching.

Teachers' Perception of Work

Teachers' perceptions of work were studied using the eighteen variables of the work sub-test of the JDI. Each teacher was asked to respond to the individual item descriptors as they pertain to each person's work. As a basis for comparison, selected items of biographical data were used for analysis of variance and correlation coefficients.

The respondents to the instrument appear to believe that the type of teaching contract—annual, probationary, or continuing—affects their per-

ception of work. The teachers who are employed on an annual contract are more satisfied with their work than those teachers employed on either the probationary or continuing contract. The analysis of variance ($F=5.211$) indicated a significant difference between groups of contract types at the .01 level.

Respondents indicated that their perception of work was dependent on the level taught and their teaching field. Special education, vocational education, and elementary teachers reported satisfaction with work. Fine arts, maths, and science teachers appeared to be least satisfied with their work of the eight areas studied. Teachers working in grades K-6 appeared to be more satisfied in their job than did educators working in grades 7-12. The analysis of variance revealed between-group significance at the .01 level for level taught and teaching field.

Total student load when compared to the teacher's work perception revealed a negative correlation of -0.19712 , which indicates that as total student load increases, teacher perception of work decreases. The confidence interval for these variables is less than 0.00002 using a between-groups test based on an N of 516.

Actual class size as perceived by the respondents revealed a negative correlation of -0.11184 when compared to the work sub-test of the JDI. As class size increased the teachers indicated a lowered perception of their job. This highly significant (0.0068) variable comparison between groups comes within the limits of the .01 confidence interval.

The salary teachers received for their services is correlated 0.20829 with teachers' perceptions of work. As teacher salaries increase a more positive job perception should appear. This research indicates that teachers in the study were not satisfied with their work, and one contributing factor was low salaries. Table 2 reveals the confidence intervals for the teachers' perceptions of work based on the biographical data collected.

TABLE 2
TEACHERS' PERCEPTION OF WORK
 $N=682$

<i>Variable</i>	\bar{X}	<i>S. D.</i>	<i>F</i>	<i>Confidence Interval</i>
Sex	36.82	8.17	2.047	.1531
Marital Status	36.94	8.04	0.761	.5162
Contract	36.83	8.03	5.211	.0058
Teaching Field	36.90	8.00	3.246	.0022
Grade Teaching	36.86	8.05	11.769	.0007
Class Organization	36.90	8.07	1.652	.1445
Degree Held	36.86	8.10	0.357	.5505

Teachers' Perception of Supervision

Teachers' perceptions of supervision were studied using the 18 variables of the supervision sub-test of the JDI. Teachers responded to the individual descriptors as they pertain to each person's work. Table 2 reveals the analysis of variance for teachers' perception of supervision in comparison with the biographical data collected.

Teachers employed on an annual contract appeared to be more satisfied with the principals' supervision they were receiving, than were the teachers employed on either the probationary or continuing contract. Teachers employed on a continuing contract were the least satisfied with their supervision of the three contract types studied. The between-groups analysis of variance ($F=9.194$) indicated a significant difference at the .01 confidence interval.

Teachers indicated that perception of supervision was dependent upon their teaching field. Special education professionals were the group which indicated the highest level of satisfaction with supervision. Teacher supervision in the fields of maths., science and vocational education were adequate according to the respondents surveyed. Teachers in the fine arts field were least satisfied with their supervision. The between-groups analysis of variance revealed an F -ratio of 1.795 and a confidence interval of .0861.

Teacher satisfaction with supervision appears to be affected by the organizational structure of the school. Teachers employed in non-graded classrooms were highly satisfied with the supervision they received. Supervision in self-contained and departmentalized classrooms was perceived by the respondents as minimal. Principals did the poorest job of teacher supervision, according to the respondents, when team teaching was the organizational pattern. The analysis of variance ($F=3.384$) indicated a significant difference between groups at the .01 level of confidence.

TABLE 3
TEACHERS' PERCEPTION OF SUPERVISION

<i>Variable</i>	\bar{X}	<i>S. D.</i>	<i>F</i>	<i>Confidence Interval</i>
Sex	44.08	9.99	0.655	.4187
Marital Status	43.96	10.12	1.359	.2546
Contract	43.84	9.99	9.194	.0001
Teaching Field	43.97	10.09	1.795	.0861
Grade Teaching	43.85	10.18	0.465	.4954
Class Organization	43.95	10.00	3.384	.0051
Degree Held	43.94	10.15	0.183	.6690

In analysing the various descriptors in the supervision sub-test classroom teachers were complimentary of the building principal. They felt the principal was knowledgeable, supportive, and well informed. The only area of concern was that of 'not being around when needed'. This feeling was evident when one considers the question: "Did the building principal supervise enough?" Over 60 per cent felt the building principal did not supervise enough. It would appear that the majority of teachers want principals to offer more individual assistance and make themselves available more often.

Teachers were asked to respond to 18 items describing their perception of their principal. Five of the descriptors are reported. The first descriptor is 'praise good work'. Fifty-three per cent of the teachers felt that the principal expressed some form of praise for a job well done. Thirty per cent felt that praise was not given, while almost 17.5 per cent did not respond or did not know.

The second descriptor selected was: Is the building principal 'tactful'? Of those that responded 68.3 per cent reported that their principal was tactful. The per cent that felt the principal was not tactful was comparatively small (10.9).

The item 'doesn't supervise enough' was as strong in the negative direction as 'tactful' was in the positive direction. Fourteen and eight-tenths per cent of the teachers felt the principal did supervise enough, while 60.9 per cent thought that their principal did not supervise enough—suggesting that teachers desire information and guidance. The percentage of teachers not responding was rather high (15.4 per cent).

This study asked teachers if they felt that their principal knew his/her job well. Seventy-one and one-tenth per cent thought the principal did in fact know his job well. The fact that 5.7 per cent did not feel the principal knew his/her job well was not as interesting as the 15.4 per cent that would not comment. When asked if the principal was 'lazy' the majority of teachers (59.1 per cent) said the principal was hard working. A small per cent (16.4) said their principal was lazy and 24.5 per cent did not respond to this descriptor.

An area that the authors found interesting was: Is the principal around when needed? Of the teachers surveyed, only 8.8 per cent said the principal was around when needed. Forty per cent said the principal was not around when needed. Almost 20 per cent did not wish to comment.

Conclusion

This study clearly points to a highly sensitive and important aspect

TEACHER'S PERCEPTION OF JOB SATISFACTION

of teacher-administrator relationships. The most pertinent data in this study have been extracted from the sub-tests of the JDI and summarized.

The respondents in this survey revealed that the annual contract was preferred as the means of employment. Teachers working in grades K-6 in the fields of [special education, vocational education, and elementary education were the more satisfied educators. As class size and total student load increased, teacher work satisfaction decreased. Teacher salary was correlated with work satisfaction and thus low salaries caused teacher job satisfaction to decline.]

The classroom teachers were very supportive of the building principal. They felt the principal was knowledgeable, helpful, and well informed. The only area in which concern was shown was that of not being 'around when needed'. This feeling probably was evident when one considers the question if the building principal supervised enough. It would appear that the majority of teachers wish the principal would offer more individual assistance and be available more often.

References

- Allen, G.G. sources of job satisfaction and dissatisfaction *Danking*, Vol 60, December 1967, 64-70
- Buros, O. K. *The seventh mental measurement yearbook* Highland Parks, New Jersey: Gryphon Press, 1972
- Carroll, Bonnie. Job satisfaction—A review of the literature. *Key Issues Series*, No. 3, New York State School of Industrial and Labor Relations February 1969
- Hogan, C.E. Teacher satisfaction among recent graduates of a master of arts teaching program as measured by selected instruments relating to attitude, education, and socio-economic factors. Unpublished doctoral dissertation, University of Notre Dame, 1968
- Hogland, R. M. Teacher personality, organizational climate and teacher job satisfaction. Unpublished doctoral dissertation, Stanford University, 1968
- Lawler, E.E. and L.W. Porter *Managerial attitudes and performances*. Homewood, Illinois: Richard Irwin, Inc., 1968
- Roehm, M.E. An analysis of role behavior, role expectations role conflict, job satisfaction, and coping patterns of associate degree, diploma, and baccalaureate degree graduates in beginning nursing positions. Unpublished doctoral dissertation, Indiana University, 1966

INDIAN EDUCATIONAL REVIEW

Ronan, W. W. Individual and situational variables relating to job satisfaction. *Journal of Applied Psychology Monograph*, February 1970

Siegal, J. P. and D. Bowen Satisfaction and performance : Casual relationships and moderating effects. *Journal of Vocational Behavior*, 1971, 263-269

Volmer, H.M. and J.A. Kinney. Age, education and job satisfaction. *Personnel*, 33, 1955, 38-43 □

Sex-Stereotyping in Block Play of Preschool Children

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SEX-STEREOTYPING in children's use of play materials affects and reinforces stereotyping in children's overall development. This exploratory study focuses on sex role stereotyping in young children's use of blocks. It examines the prevailing evidence that blocks are considered boys' material and are mainly used by boys.

Block Play of Preschool Children

More than 50 years ago when early childhood educators acknowledged children's play as a significant subject for research, block play was recognized and accepted as a useful medium for the study of children's self-education (Johns 1933). Even today block play continues to be an important early childhood education curricular activity. Blocks are considered to help young children develop perceptual, mathematical and science awareness (Read 1976, Stark 1970), promote motor coordination and provide learnings of design and construction. Blocks encourage cooperative and dramatic play, help children to release energy, aid social integration and combine creative expression with mastery (Hartely *et al*, 1952).

Since blocks support children's development in an integrated and organic way and offer them innumerable experiences, it seems desirable to promote their use both by girls and boys. However, it appears from literature available that blocks are generally considered boys' material. They are described as requiring active and physical participation, accompanied by noise and much calculation. In traditional Western society, block-building is supposed to characteristically fall into a man's world

*Lauren Favero and Bonnie Schwartz, students at Douglass College in Early Childhood Education Certification Programme made observations for this study as part of a research project they did with the author.

(Sprung 1978). This finding that boys dominate the block area and girls seldom get involved in the activity, was also confirmed by student observations at a college laboratory nursery school.

A number of the past studies have focused on descriptions of sex-stereotypic play in the block area. In classroom after classroom blocks are seen as a boy's domain (Sprung 1975), Robinson (1977) found distinct play patterns among boys and girls in several block play episodes. Boys tended to be more actively and physically involved with the blocks, while the girls assumed docile and passive roles. A study was conducted by Smith (1977) to establish behaviourally based masculine and feminine activity preference scales for preschoolers. He found that when young children were confronted with 26 different play preferences, one of which included block play, the boys spent more time with blocks than the girls. Smith's prediction of male domination in the block area was supported by his findings. The percentage of free play time spent with blocks was significantly higher for boys than for the girls.

Cramer and Hogan (1975) repeated an early study by Erikson. They presented a group of five-year olds with a set of 18 differently shaped wooden blocks, dolls and dolls furniture, vehicles and toy animals. The children were asked to develop an imaginary moving picture scene with any of the available materials. They observed that the boys used more blocks, vehicles and male uniformed dolls, supporting the earlier study. Twenty-one per cent of the blocks were used in the structures boys made, while only five per cent of the blocks were used in the structures girls made.

Frisch (1977) observed toy selections of both female and male children between the ages of 14-15 months. In an experimental playroom set up by him, various toys were available on the floor to the children. The materials included blocks, beach balls, bobo dolls, a bracelet, a doll, and a baby bottle. Girls' toy selections consisted of dolls and other typical female toys, while the boys portrayed the typical aggressive and physical behaviour labelled 'masculine' by their interest in blocks.

From literature reviewed, it seems evident that building blocks are associated with architecture, construction, engineering and 'making things work'. They require active and physical participation and are accompanied by noise and calculation. For boys, visual spatial ability as measured by the WPPSI (Wechsler Preschool and Primary Scale of Intelligence) shows a positive correlation with a preference for 'masculine' activities. This finding lends support to a study done by Sherman (1967) that the superior visual spatial ability of males is related to their greater involvement in masculine activities such as blocks and large motor toys.

Some studies deal with environmental influences and their effects on children's play. Kinsman and Berk's empirical study (1979) looked at two traditional early childhood activity settings—blocks and housekeeping and their influence on young children's play and social behaviours. Even with no conscious effort from teachers to sex type, it has been suggested that girls, who play with dolls, may receive a very different education from boys who play with blocks (Stacey, Bereaud and Daniels 1974). Other studies report that boys spend more time playing in the block area and girls spend more time in the homemaking area (Clark, Wyon and Richards 1969, Coates, Lord and Jakabovics 1975, Sears 1965, Vance and McCall 1934).

Purpose of the Study

The purpose of this exploratory study was to examine the prevailing evidence that blocks are considered boys' material and mainly used by boys, and if so, to develop alternatives to encourage girls to play with blocks.

Method

The subjects of this study were 16 four-year olds, 8 boys and 8 girls. As the children entered nursery school each afternoon, there were various activities available to them. The children were free to play in any of the activity centres for a half hour. The block play centre, the area of focus for this study, was approximately 18 ft. \times 18 ft. and the unit blocks were stored on large wooden shelves, easily accessible to the children. For use with the unit blocks there were also on the shelves several accessory toys, wooden trucks, ramps and hollow blocks.

Procedure

Two students, both in Early Childhood Education Teacher Certificate Programme, made observations. At the outset they spent time in the observation booth of the nursery school, familiarizing themselves with the children, the set-up and the daily curricular routines. It was then decided to observe and record children's play behaviour during free play time (i.e. 12.45 to 1.15 p.m.) because it was at this time that the children were free to select the activity of their preference. It was also decided to use a code for each kind of block activity to facilitate recording. Block play was assigned the letter B and broken down into sub-units of different types of block play thus :

- (a) B_1 = Stacking (3 to 5 blocks tall)
- (b) B_2 = Building
 - (i) B_2G = General block structure with more than 3-5 blocks
 - (ii) B_2R = Representational block configurations
- (c) B_3 = Play (blocks as secondary importance to other play materials)
- (d) B_4 = Clean-up of blocks
- (e) B_5 = Knocking down block structure

Hypotheses

It was hypothesized that, (i) boys would be more likely to engage in any type of block activity, compared to girls; (ii) boys would be more likely to engage in B_1 , B_2 , and B_3 activities, compared to girls; (iii) girls would be more likely to engage in B_3 and B_4 activities, compared to boys. After obtaining observer reliability, observations were made of 30 minutes during the free play period. Each observation was divided into six intervals of 5 minutes. Twelve observations (72 intervals consisting of five minutes each) were recorded by both observers. Since the observations were made from the observation booth, the observers were not visible to the children. This aided in uninterrupted recording. At the end of these 12 observations an overall percentage of block play during free play time was calculated for each individual child.

Several differences were noted between the play behaviour of the girls and boys. In general, the girls spent limited time in the block area. On the other hand, the boys were actively building large block constructions and incorporated large wooden trucks in their block play, supporting Hypothesis 2. Although two girls spent more time in the block area than the other girls, it was not comparable to that of the boys, since their block play consisted of just two episodes. Their activities included the construction of a house for the nursery school guinea pig (B_3 type of play) which could be described as a nurturant activity seen as a predominantly female role; and B_4 type of block play, i.e. clean-up of blocks*.

After establishing base line measurements, an intervention in the curricular programme was planned. The intervention involved setting up

*Clean-up involved sorting out, arranging and putting the blocks back on their respective shelves. At the end of free play it was the practice in the nursery school, that children put away the toys used in various activities. It was observed that after the girls put away the materials they had used (homemaking, art, manipulative toys) they would invariably, willingly, assist the boys in putting away the blocks, even though they themselves had not used them. This also could be described as a "mothering" or "feminine" type of activity.

a new block area. Initially it was planned to set up the new block area in an adjoining room, which was frequented by the girls for art, stories and other quiet activities. This was intended in order to (a) offer the girls direct access to the blocks and encourage uninhibited block play by themselves, and (b) to ensure that the new blocks would not simply be added to the old ones. This was not possible because of the inadequacy of space available in the school. Therefore, it became necessary to place the new block area next to the original block area. The new block area contained blocks similar to the ones in the old block area and doubled the number of blocks. The two areas were approximately equal in area and were separated from each other by two 3 ft. dividers. This arrangement made it difficult to keep separate records of block play in the old block area and in the new block area.

Eight subsequent observations were made (48 intervals of 5 minutes each). Block play was recorded by both observers in both block areas together, the new and the old. At the end of these eight observations, an overall percentage of block play was calculated. Five out of the eight boys increased the time they spent playing with blocks when the new block area was available. Furthermore, the attempt to encourage block play by girls was successful. Three girls, who had not used blocks during the first set of observations, initiated block play. There was an increase in the time spent by all girls in their block play. And the availability of additional blocks elicited B_1 and B_2 type of block play by girls. Hence, when the new block area was added, the girls overcame the limitation shown earlier in the pre-test.

Conclusion

By recording observations of children at play with blocks, this exploratory study examined one of the many sex-role stereotypic learning activities that exist in early childhood education programmes. By simply providing increased opportunities for girls to play with blocks, more play of a non-stereotypic kind occurred among the girls. The results of the study suggested that block play of pre-school girls could be increased with an intervention, such as providing more blocks. Also that such interventions could be expanded to include additional learning experiences initiated, encouraged and reinforced by parents and teachers.

Similar efforts to overcome sexist teaching environments may have the same positive effects on children. Greater efforts must therefore be made by all concerned to provide children with opportunities to develop and achieve their fullest potential free from sex-stereotyping.

References

- Blau, Rosalie M. *Many learnings through block play*. Creating materials for work and play. Portfolio Washington D.C. : Association for Childhood Education International, 1969
- Cartwright, S. Blocks and learning. *Young Children*, 1974, 141-145
- Clark, A.H , Wyon, S.M., and Richards, M.P.M. Free play in nursery school children *Journal of Child Psychology and Psychiatry*, 1969, 10, 205-216
- Coates, S., Loid, M., and Jakabovics, E. Field dependence-independence social-non-social play and sex differences in preschool children. *Perceptual and Motor Skills*, 1975, 40, 195-202
- Cobb, Jewel Plummer. Filters for women in science *Annals, New York Academy of Sciences*, 1979, 236-248
- Cramer, P. and Hogan, K. The development of sex-related fantasy patterns. *Developmental Psychology*, 1975, 145-154
- Cuffaro, H. Re-evaluating basic premises Curricula free of sexism. *Young Children*, September 1975, 30, 475-478
- Frisch, H. Sex stereotypes in adult-infant play. *Child Development*, 48, 1977 388-394
- Hartley, Ruth, Frank Lawrence and Goldenson, Robert. *Understanding children's play*. New York: Columbia University Press, 1952
- Johnson, Harriet M. *The art of blockbuilding* New York : Bank St. College of Education, 1933
- Kinsman, Cheryl A. and Laura E. Berk. Joining the block and housekeeping areas. *Young children*, November 1979, 35, 66-75
- Lee, P. Re-inventing sex roles in early childhood education. *Educational Digest*, 1976, 42, 20-23
- Lynn, David B. *The father · His role in child development*. Monterey, California : Brooks Cole, 1974
- Maccoby, E.E and Jacklin, Carol Nagy. *The psychology of sex differences*. Stanford : California: Stanford University Press, 1976
- Nilsen, Allen Pace. Alternatives to sexist practices in the classroom. *Young Children*, July 1977, 32, 53-58
- Read, Katherine *The nursery school* Human Relationships and learning. Philadelphia: Saunders, 1976
- Robinson, H. *Exploring teaching early childhood education*. Boston: Allyn and Bacon, Inc , 1977

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- Sears, R.R. Development of gender role In F.A. Beach (Ed.) *Sex and behaviour*. New York : John Wiley & Sons, 1965
- Serbin, L.A. A comparison of teacher response to the preacademic and problem behaviour of boys and girls *Child Development*, 44, 1973, 796-804
- Sherman, J. Problems of sex differences in space perception and aspects of psychological functioning. *Psychological Review*, 1967, 74, 290-299
- Smith, P. Behaviorally based masculine and feminine activity preference scales for preschoolers : Correlates with other classroom behaviors and cognitive tests. *Child Development*, 1977, 48, 389-404
- Sprung, B. *Non-sexist education for young children* New York: Citation Press, 1975
- Sprung, Barbara *Perspectives on non-sexist early childhood education*. New York: Teachers College Press, 1978
- Stacey, J , Bereaud, S and Daniels, J. (Eds.) *And Jill came tumbling after: Sexism in American education* New York. Dell Publishing Co., 1974
- Stark, Esther. *Blockbuilding* A study action publication. Washington, D C. : American Association of Elementary, Kindergarten, Nursery Education, 1970
- Vance, T.F and McCall, L.T Children's preferences among play materials as determined by the method of paired comparisons of pictures. *Child Development* 1934, 5:267-277 □

Self-Concept in Relation with Locus of Control, Socio-Economic Status and Intelligence of Pupils in Private and Government Schools

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THE SHARP INCREASE in the number of research studies on self-concept and allied non-cognitive variables since 1960 has been described as being in line with the current concern in education with enhancing the child's self-concept. Consequently, the fundamental responsibility of schools towards improving the self-concept of their students is being recognized today (Clark 1963, Marston 1968, Tannenbaum 1972). According to Shavelson, Hubner and Stanton (1976), the construct of self-concept is linked with achievement and "whether used as an outcome itself or as a moderator variable that helps explain achievement outcomes, is a critical variable in education and in educational evaluation and research."

Broadly speaking, self-concept is a person's total subjective environment and a distinctive centre of experience and significance which results from the evaluational interaction with others becoming the consistent personal perspective of 'I' and 'Me' (Jersild, Telford and Sawrey 1975). It includes (i) cognitive components (an individual's perception of his physical attributes and self-conceptions of himself, his abilities, purposes, beliefs, moral commitments and values), (ii) affective components (feelings, sentiments, moods); (iii) capacity for self-evaluation (approval or disapproval); and (iv) attitudinal components. All these components

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react with each other in a complex manner in different situations to give uniqueness and direction to human personality and behaviour. Shavelson, *et al.* (1976) have isolated seven features of self-concept after extensive review of literature and have described it as being organized, multifaced, hierarchal, stable, developmental, evaluative and differentiable.

The current shift in education towards humanistic ideals and on development of self-reliance is equally reflected in the attention which the concept of 'locus of control' has received at the hands of researchers (DuCette and Wolk 1972, Lawrence and Winschel 1975, Kurtz and Neisworth 1976). Originally formulated by Rotter in 1966, locus of control describes the belief which an individual holds as to the source of his reinforcements. Reinforcement may be seen as largely the consequence of one's own actions or characteristics (internal locus of control) or as the result of outside forces (external locus of control) such as fate, chance, or the action of powerful others. Several studies have suggested that the locus of control variable plays a major role in the learning process and striving for achievement by influencing an individual's strategy preferences in confronting problem-solving and risk-taking situations. Recent research also recognizes the value of development of internality among individuals for self-enhancement and self-control and better learning (McGhee and Grandnall 1968, Joe 1971, Shipe 1971, Nowicki and Walker 1973, Dweck and Repperce 1973, Stevens and Delys 1973, Gozali *et al.* 1973, Daniels and Stevens 1976). Thus, it may be hypothesized that locus of control and self-concept are two intimately related variables.

The development of an individual's self-concept is determined by a large number of factors, both personal and environmental in nature. Among a host of these factors, mention may be made of intelligence, socio-economic status and types of schools. There is scattered evidence to suggest that intelligence, type of schools and socio-economic status may affect the self-concept of pupils but the evidence is far from being conclusive as the results are conflicting (Sharma 1970, Sinha 1974, Ram Kumar 1975, Verma 1977, Gupta 1977). There is however little evidence as to the interaction between the above variables *vis-a-vis* self-concept. This motivated the investigators to plan the present exploratory study.

The present investigation was planned to answer the following questions :

1. Can pupils with internal and external locus of control be differentiated on the basis of their self-concepts ?
2. How do pupils with high or low socio-economic status differ with

respect to their self-concepts ?

3. Can pupils with average and low intelligence be discriminated on the basis of their self-concepts ?
4. How do pupils studying in the government and private schools differ with respect to their self-concept ?
5. Is the extent of interaction between self-concept, locus of control, socio-economic status, intelligence and types of schools significant ?

The answer to the above questions were sought by designing a $2 \times 2 \times 2 \times 3$ factorial design.

Operational Definitions

The following operational definitions were adopted in the present investigation :

1. *Locus of Control*

Locus of control was defined in terms of personal control a person has over the reinforcements and the rewards that follow actions and efforts. When a particular event was perceived by an individual as contingent upon his own relatively stable characteristics, this was referred to as 'internal' locus of control. On the other hand, when the event was perceived by him as a consequence of some action of his own but not being entirely contingent upon it or is attributed to luck, chance, fate or under control by other, such a belief was termed as 'external' locus of control. An individual was classified as having an external or internal locus of control depending upon his scores on Rotter's IE scale in Hindi language.

2. *Socio-economic Status*

The socio-economic status of an individual was defined as one based upon his occupation, education, income and facilities, index of which is provided by Kuppaswamy's socio-economic status scale, form B. On the basis of the index derived, adolescents were classified as belonging to 'high' socio-economic status and 'low' socio-economic status.

3. *Intelligence*

Intelligence was defined in terms of general mental ability, index of which is provided by the scores obtained by an individual on the test of general mental ability in Hindi by Prayag Mehta. On the basis of the scores obtained on the test, individuals were classified as belonging to (i) high intelligence level, (ii) low intelligence level, and (iii) average intelligence level respectively.

4. *Self-concept*

The self-concept was operationally defined as the organization of all that the individual refers to as 'I' or 'me', information about which can be obtained by using Deo's personality word checklist (PWL). The self-concept of an individual (as he perceived himself really to be), i.e. perceived real self-concept was taken up for the study.

Research Design

1. *Sample*

The sample for the present study consisted of 275 adolescents studying in eight high schools of Jammu city. The net sample on whom data complete in all respects available was reduced to 249. The mean age of the students was 15 years and four months. Adolescents were especially selected for the study because the self-concept as well as locus of control which are important dimensions of personality seem to show signs of crystallization at this stage. Therefore, there is some likelihood that at this level, self-concept might be influenced by social status, intelligence, type of school and locus of control which, in turn, would influence pupils' attitudes.

Controls Applied

Controls were exercised with respect to the following variables :

- (i) *Grade* : The sample selected was restricted to pupils studying in the ninth grade in high schools.
- (ii) *Subjects* . Since at the ninth grade level, students select different streams of subjects, therefore, for the present investigation, only those students were selected who had taken up sciences as one of their subjects,
- (iii) *Health* : Since self-concept and locus of control may be affected by physical abnormalities or illness and other exceptionalities, every effort was made to select pupils of good health and without any visible abnormalities.

Data Collection

Collection of the following data was necessitated by the study :

1. *Locus of Control*

For this, Hindi version of Rotter's 18 scale was employed. This scale developed by Rotter (1969), is a paper-pencil test consisting of 29 forced choiced items, six of which are fillers. Each item has two statements (a) and (b). The subject is required to select one item which des-

cribes his situation more truly. The scoring involves giving of '1' mark, if the statement pertaining to the external locus of control is checked and '0' mark if the other is checked. Classification of a subject into external or internal is made through median split. Data on reliability and validity have been given by the test-maker.

2. *Socio-economic Status*

The scores on socio-economic status were obtained for the subjects by administering Kuppaswamy's socio-economic status scale, form B. The responses by the subject for each item were given weightage as suggested by the test-maker and an index of socio-economic status was obtained by adding weights from all the items. On the basis of directions in the manual, the subjects were classified as belonging to high socio-economic group and low socio-economic group respectively.

3. *Intelligence*

For intelligence, group intelligence test (in Hindi) by Prayag Mehta was employed. This test consists of 60 items put under ten categories with six items in each category. The time-limit is 18 minutes and raw scores convertible into percentiles are obtained.

4. *Self-concept*

Data on perceived real self-concept were collected with the help of Deo's personality word checklist in Hindi. The shorter version of the PWL was employed. The PWL can be used for the assessment of personality either by the self-concept approach or by observations by other approach. The shorter version of the PWL consists of 90 adjectives describing personality and each subject is required to mark those adjectives which, according to him/her described himself/herself accurately. The subjects were directed to mark those adjectives which (as they perceived) described themselves best 'as they were in reality'. The PWL was scored with the help of two separate keys, one for finding positive adjective scores (the number of positive adjectives marked) and the second for finding negative adjective scores (the number of negative adjectives marked). The difference between the positive and negative scores for an individual gave score for his composite perceived real self-concept.

Treatment

Data were classified and analysed statistically. A $2 \times 2 \times 2 \times 3$ factorial design was devised for unequal but proportional frequencies in different cells as outlined by Edwards (1968) and Lewis (1968). The outlines of the design is given on the next page.

FACTOR D : TYPES OF SCHOOLS

D₁ Govt.D₂ Private

FACTOR A LOCUS OF CONTROL					
Internal A ₁			External A ₂		
FACTOR B . SOCIO-ECONOMIC STATUS					
High B ₁		Low B ₁	High B ₁		Low B ₂
FACTOR C : INTELLIGENCE					
C ₁	C ₂	C ₃	C ₁	C ₂	C ₃
High	Avg	Low	High	Avg	Low
M=	M=	M=	M=	M=	M=
87.66	88.00	69.22	77.83	109.00	72.00
N=6	N=9	N=18	N=6	N=3	N=12
D ₁ Govt.					
M=	M=	M=	M=	M=	M=
95.57	95.83	67.00	101.00	87.66	71.11
N=42	N=24	N=9	N=3	N=6	N=9
D ₂ Private					
M=	M=	M=	M=	M=	M=
95.57	95.83	67.00	101.00	84.00	59.00
N=42	N=24	N=9	N=3	N=3	N=3

SELF-CONCEPT IN PRIVATE AND GOVERNMENT SCHOOLS

1. Factor A : Locus of control
 - A₁ : Internal locus of control
 - A₂ : External locus of control
2. Factor B : Socio-economic status
 - B₁ : High socio-economic status
 - B₂ : Low socio-economic status

Discussion

TABLE 1
SUMMARY OF THE ANALYSIS OF VARIANCE OF DATA USING
2×2×2×3 FACTORIAL DESIGN

<i>Sources of Variation</i>		<i>Sum of Squares</i>	<i>D. F.</i>	<i>Mean Variance</i>	<i>F</i>
A	Locus of Control	20744.60	1	20744.60	216.88*
B	Socio-economic Status	18919.28	1	18919.28	197.79*
C	Intelligence	37951.88	2	18975.94	198.39*
D	Types of Schools	6729.01	1	6729.01	70.35*
AB	Locus of Control × Socio-economic Status	50.62	1	50.62	.53
AC	Locus of Control × Intelligence	23.05	2	11.52	.12
AD	Locus of Control × Types of Schools	1.34	1	1.34	.01
BC	Socio-economic Status × Intelligence	20.76	2	10.38	.11
CD	Intelligence × Types of Schools	51.03	2	25.51	.27
BD	Socio-economic Status × Types of Schools	0.56	1	.56	.01
A×B×C	Locus of Control × Socio-economic Status × Intelligence	690.59	2	345.29	3.61**
A×C×D	Locus of Control × Intelligence × Types of Schools	117.68	2	58.84	.62
A×B×C	Locus of Control × Socio-economic Status × Types of Schools	62.04	1	62.04	.65
B×C×D	Socio-economic status × Intelligence × Types of Schools	266.73	2	133.36	1.39
A×B×C×D		62496.47	2	31248.24	326.69*
Within	CMSW	2200.104	23	95.65	

*Significant beyond .01 level

**Significant at border line

Table 1 shows the summary of analysis of variance of the data treated as a $2 \times 2 \times 2 \times 3$ factorial design. The total variance has been partitioned so as to denote variance due to the main effects, namely, locus of control (A); socio-economic status (B); intelligence (C); and types of schools (D). Besides these, variances contributed by the interactions among any two effects at a time (first-order interactions, namely, $A \times B$; $A \times C$; $A \times D$; $B \times C$; $C \times D$; $B \times D$); due to any three effects taken at a time (second-order interactions, namely, $A \times B \times C$; $A \times C \times D$; $A \times B \times D$ and $B \times C \times D$) and interaction between all the effects (third-order interaction, namely, $A \times B \times C \times D$) have been isolated.

It may be seen from Table 1 that all the main effects are significant beyond .01 level of significance. This suggests that significant differences exist between the different levels of the main effects on self-concept scores. None of the six first-order interactions is significant which indicates that any two effects taken together do not significantly influence self-concept. Out of the four second-order interactions, while three are insignificant ($A \times C \times D$, $A \times B \times D$; $B \times C \times D$), the value of interaction between $A \times B \times C$ fails to reach .05 level of significance by very small margin ($F=3.61$). This suggests that locus of control socio-economic status and intelligence taken together, are more likely to affect the perceived real self-concept of the pupils. It is however interesting to find that the third-order interaction ($A \times B \times C \times D$) is very highly significant ($F=326.69$). This indicates that all the four factors, namely, locus of control, socio-economic status, intelligence and type of schools taken together, very significantly influence the perceived real self-concept of adolescents.

Significant main effects as well as interactions were analysed separately at length by taking the mean scores for cross-classifications. Even though the interaction $A \times B \times C$ fails to reach the .05 significance level yet, it was felt desirable as also recommended by Lewis (1968), to subsequently analyse the same. The results have been represented in Tables 2, 3 and 4 respectively.

From Table 2 it may be seen that the difference between the means A_1 and A_2 is significant beyond .01 level in favour of A_1 . In other words, the self-concept of pupils with internal locus of control is significantly higher than the self-concept of pupils with external locus of control. Similarly, difference between the means of B_1 and B_2 is also significant beyond .01 level, thereby suggesting that pupils with higher socio-economic status have significantly higher perceived real self-concepts. While the differences of means of pupils with high and average intelli-

TABLE 2
SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS
CELL MEANS (MAIN EFFECTS)

<i>Cell means under reference</i>	<i>Difference</i>
A ₁ and A ₂	13.98*
B ₁ and B ₂	12.93*
C ₁ and C ₂	.33
C ₁ and C ₃	17.90
C ₂ and C ₃	18.23
D ₁ and D ₂	7.59

*Significant beyond .07 level

gence (C₁ and C₂) are insignificant yet, differences between the means of pupils with high and low intelligence, (i.e C₁ and C₃) and between average and low intelligence (C₂ and C₃) are insignificant beyond .01 level. This indicates that pupils with high intelligence have significantly higher self-concepts than the pupils with low intelligence. Lastly, difference between the means of D₁ and D₂ is insignificant beyond .01 level in favour of D thereby suggesting that the adolescents in private schools have higher self-concepts than the adolescents in the government schools.

TABLE 3
SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS
CELL MEANS FOR A×B×C INTERACTION

<i>Cell means under reference</i>	<i>Differences</i>
A ₁ B ₁ C ₁ V/S A ₂ B ₁ C ₁	21.63*
A ₁ B ₁ C ₂ V/S A ₂ B ₁ C ₂	6.41
A ₁ B ₂ C ₁ V/S A ₂ B ₂ C ₁	3.45
A ₁ B ₂ C ₂ V/S A ₂ B ₂ C ₂	12.92*
A ₁ B ₂ C ₃ V/S A ₂ B ₂ C ₃	35.22*
A ₁ B ₃ C ₁ V/S A ₂ B ₃ C ₁	15.88*

*Significant beyond .01 level

Out of the six differences between various cell means for the interaction A×B×C shown in Table 3, as many as two are not significant while the rest are significant beyond .01 level.

SELF-CONCEPT IN PRIVATE AND GOVERNMENT SCHOOLS

TABLE 4
SIGNIFICANCE OF DIFFERENCES BETWEEN VARIOUS CELL MEANS
FOR $A \times B \times C \times D$ INTERACTION

<i>Cell means under reference</i>	<i>Difference</i>	<i>Cell means under reference</i>	<i>Differences</i>
$A_1B_1C_1D_1$ V/S $A_3B_1C_1D_1$	22.33*	$A_1B_1C_1D_1$ V/S $A_1B_1C_1D_2$	7.91
$A_1B_1C_2D_1$ V/S $A_2B_1C_2D_1$	21.00	$A_1B_1C_2D_1$ V/S $A_1B_1C_2D_2$	7.83
$A_1B_1C_3D_1$ V/S $A_2B_1C_3D_1$	2.78	$A_1B_1C_3D_1$ V/S $A_1B_1C_3D_2$	2.22
$A_1B_2C_1D_1$ V/S $A_2B_2C_1D_1$	8.83	$A_1B_2C_1D_1$ V/S $A_1B_2C_1D_2$	23.17*
$A_1B_2C_2D_1$ V/S $A_2B_2C_2D_1$	40.78*	$A_1B_2C_2D_1$ V/S $A_1B_2C_2D_2$	3.45
$A_1B_2C_3D_1$ V/S $A_2B_2C_3D_1$	18.42*	$A_1B_2C_3D_1$ V/S $A_1B_2C_3D_2$	4.27
$A_1B_1C_1D_2$ V/S $A_2B_1C_1D_2$	20.91*	$A_2B_1C_1D_1$ V/S $A_2B_1C_1D_2$	9.33*
$A_1B_1C_2D_2$ V/S $A_2B_1C_2D_2$	8.17	$A_2B_1C_2D_1$ V/S $A_2B_1C_2D_2$	21.34*
$A_1B_1C_3D_2$ V/S $A_2B_1C_3D_2$	4.11	$A_2B_1C_3D_1$ V/S $A_2B_1C_3D_2$.89
$A_1B_2C_1D_2$ V/S $A_2B_2C_1D_2$	17.00**	$A_2B_2C_1D_1$ V/S $A_2B_2C_1D_2$	15.00*
$A_1B_2C_2D_2$ V/S $A_2B_2C_2D_2$	29.66*	$A_2B_2C_2D_1$ V/S $A_2B_2C_2D_2$	7.67
$A_1B_2C_3D_2$ V/S $A_2B_2C_3D_2$	13.33	$A_2B_2C_3D_1$ V/S $A_2B_2C_3D_2$.82

*Significant beyond .01 level

**Significant beyond .05 level

In Table 4, out of 24 differences between various cell means for the third-order interaction ($A \times B \times C \times D$) while ten are significant beyond .01 level, the rest, i.e. 14 differences are insignificant (even though one value out of the insignificant ones fails to reach the .05 level of significance by a small margin).

Conclusions

The following conclusions may be drawn from the present study :

1. Adolescents with internal locus of control were found to have significantly higher perceived real self-concepts as compared to the adolescents with external locus of control.
2. Adolescents belonging to the families with high socio-economic status were found to have significantly higher perceived real self-concepts as compared to the adolescents from low socio-economic status families.
3. Adolescents with high and average intelligence were found to have significantly higher perceived real self-concepts as compared to the adolescents with low intelligence.
4. Adolescents studying in privately managed high schools had significantly higher perceived real self-concepts as compared to the adolescents in the government-managed high schools.
5. There is likelihood of significant interaction between locus of control, socio-economic status and intelligence vis-a-vis self-concept. There was evidence to show that this interaction is more among pupil with internal locus of control, higher socio-economic status and high intelligence and is the least among pupils with external locus of control, low socio-economic status and low intelligence respectively.
6. The interaction between locus of control, socio-economic status, intelligence and types of schools in relation with the perceived self-concept of adolescents is highly significant. This interaction is maximum among the pupils with external locus of control, high socio-economic status and average intelligence studying in the government schools while it was observed to be the least among the pupils with external locus of control, low socio-economic status and average intelligence, studying in government schools.

It may be remarked that the results obtained in the present study provide a valuable evidence regarding the influence of variables namely, locus of control, socio-economic status, intelligence and types of schools in relation with the perceived self-concept at the adolescent stage. The results obtained corroborate to some extent, the results obtained earlier by Lebo 1956, Perkins 1958, Kaur 1967, Burke 1969, Sharma 1970, Ram Kumar 1970, Epstein and Kamorita 1971, Fox 1972, Sinha 1972, 1974, Mohini 1974, Verma 1977 and Gupta 1977 respectively.

References

- Battle, B. and Rotter, J. B. Children's feelings of personal control as related to social class and ethnic group. *Journal of Personality*, 31, 482-490, 1963
- Clark, K.B. Educational stimulation of socially disadvantaged children. In H. A. Passow (Ed.) *Education in depressed forces*. New York : Bureau of Publication, Teacher's College, Columbia University, 1963
- Crandall, V. C. Kathovsky, W. and Crandall, V. J. Children's beliefs in their own control of reinforcement in intellectual academic achievement. *Child Development*, 36, 91-109, 1965
- Daniels, R. L. and Stevens, I. P. The interaction between the internal-external locus of control and two methods of college instruction. *American Educational Research Journal*, 13, 2, 103-113, 1976
- Deo, P. and Sharma, S. Self-concept and school achievement. *Indian Educational Review*, 5, 100-105, 1970
- Ducette, J. P. and Wolk, S. Locus of control and extreme behaviour. *Journal of Counselling and Clinical Psychology*, 39, 253-258, 1972
- — — and — — — Locus of control and levels of aspiration in black and white children. *Review of Educational Research*, 42 (4), 493-504, 1972
- Dweck, C. S. and Reppucci, N. D. Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25, 109-116, 1973
- Engel, M. The stability of self-concept in adolescence. *Journal of Abnormal and Social Psychology*, 64, 9-14, 1959
- Epstein, R. and Komorita, S. S. Self-esteem, success-failure, and locus of control in Negro children. *Developmental Psychology*, 4, 2-8, 1971
- Fox, P. B. Locus of control and self-concept in mildly retarded adolescents. Doctoral dissertation, University of Minnesota, 33, 3207 B, 1972 (University Microfilms, No. 72-32, 287)
- Gozali, H., Cleary, T. A., Walster, G. W. and Gozali, J. Relationship between the internal-external control construct and achievement. *Journal of Educational Psychology*, 64, 9-14, 1973
- Gupta, A. K. Study of pupils in government and private schools on different dimensions of self-concept. Unpublished research report Jammu : Model Institute of Education and Research, 1977
- Jersild, A. T., Telford, C. W. and Sawrey, J. M. *Child psychology* (7th Edn.) Englewood Cliffs, N. J. Prentice-Hall, Inc., 1975
- Joe, V. C. Review of the internal-external control construct as a personality variable. *Psychological Reports*, 28, 619-640, 1971
- Kurtz, P. D. and Neisworth, J. T. Self-control possibilities for exceptional children. *Exceptional Children*, 42 (4), 213-218, 1975
- Lawrence, E. A. and Winschel, J. F. Locus of control, Implication for special education. *Exceptional Children*, 41 (7), 483-490, 1975
- Lefcourt, H. M. Recent developments in the study of locus of control. In B. Mahar

INDIAN EDUCATIONAL REVIEW

- (Ed.) *Progress in experimental personality research*. New York : Academic Press, 1972
- McGhee, P E. and Grandnall, V. C. Beliefs in internal-external, control of reinforcement and academic achievement. *Child Development*, 39, 91-102, 1968
- Parent, J., Forward, J., Carter, R. and Mohling, J Interactive effects of teaching strategy and personal locus of control on student performance and satisfaction, *Journal of Educational Psychology*, 67, 764-769, 1975
- Perkins, H V. Factors influencing self-concepts. *Child Development*, 29, 1958
- Ramkumar, V. Intelligence and self-concept. *Education and Psychology Review*, 10, 3, 154-157, 1970
- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80, 1-28, 1966
- Shavelson, R. J., Hubner, J. J. and Stanton, G C Self-concept : Validation of construct interpretation. *Review of Educational Research*, 46, 3, 407-441, 1976
- Sinha, V Self-disclosure in relation to intelligence. *Seeme*, 1, 6, 1-4, 1974
- Smith, W. D. and Lobo, D. Some changing aspects of the self-concept of adolescent males. *Journal of Genetic Psychology*, 88, 1956
- Stevens, M. and Deleys, P. External control expectancies among disadvantaged children at preschool age. *Child Development*, 44, 670-674, 1973
- Tantenbaun, A, J. Social and psychological consideration in the study of the socially disadvantaged. In P. A. Witty (Ed.) *The educationally retarded and disadvantaged*. Sixty-sixth Year Book of the National Society for the Study of Education, Part I, Chicago : University Press, 1967
- Verma, L. K. A study of self-concept in relation to internal-external control and socioeconomic status of high school students. *Quest in Education*, 16, 2, 139-143, 1971

Runs of Identical Marks in Marksheets and Their Bearing on the Reliability of Marking

H. J. TAYLOR

IN AN EXAMINATION marksheet it frequently happens that two or more consecutive scripts are given the same mark. Such a sequence will be called a 'run'. Runs are often noticeable when the mark in question is the minimum passing mark. In a previous study (Taylor 1963) it was shown that this mark is sometimes given to an unduly high proportion of scripts. This was called the 'J-effect', since it gives rise to a J-shaped anomaly in the distribution curve of the marks. It is often associated with the occurrence of unusually long runs of passmarks.

The question suggests itself whether, by studying the runs which occur in a marksheet, one could learn something about the quality of the examining. Suppose that in a marksheet covering, say, 250 scripts, we find 50 consecutive passmarks with the other marks all different. It is in the highest degree unlikely that all the passmark scripts could have happened, by pure chance, to be placed consecutively in the bundle, and one would immediately suspect inaccurate and careless marking. In principle, therefore, a sufficiently extreme distribution of marks would justify the rejection of a marksheet. In practice however it would be necessary to know what is to be regarded as 'sufficiently extreme, and this can be quite a difficult question. A run of 50 is preposterous but what about a run of 10, or even 5? In an example discussed later 250 scripts show 77 passmarks, which include three runs of 5. The question is this: Given reliable marking, is there a reasonable probability that these three runs could have appeared by chance? The problem is worth looking into, since it could conceivably provide a criterion for judging the reliability of marking.

To analyse marksheets from this point of view one needs to have available a number of appropriate formulae, not all of which are familiar. One purpose of this paper is to give these formulae in convenient form for reference. The proofs vary in difficulty, but are here omitted. The

formulae can be verified numerically in simple cases where the numbers concerned are small enough for all possibilities to be enumerated. To assist such checking, or the testing of other formulae, one such enumeration is given in the Appendix. The second purpose of the paper is to apply the method to two specific examples which have been drawn from previous work (Taylor 1963).

Two Conditions

Several studies of the serial correlations to be found in marksheets have been made previously (Taylor and Tluanga 1965, Taylor *et al.* 1966). The incidence of runs is also a question of serial correlation. If such studies are to yield any useful information the following two conditions must be satisfied :

1. The original bundle of scripts supplied to the examiner must be in random order of merit.
2. The marksheet represent the order in which the scripts were actually marked by the examiner.

The first condition implies that there is no correlation between the candidate's serial number and his ability. No doubt this is often roughly true, but it is highly desirable that the condition be satisfied rigorously by randomizing the scripts before distribution to examiners. One way of doing this has been described previously (Taylor 1963). If this precaution is not taken, marksheet analysis cannot be validly applied, and examination results are inevitably less precise.

The second condition is hard to check, but it seems fair to assume that it is satisfied for all but a very small proportion of marksheets. Most examiners work steadily through the bundle of scripts without disturbing their order, and previous studies have provided some evidence for this (1965, 1966). Indeed the very presence of significantly long runs is itself an indication that condition 2 is satisfied.

In what follows it is assumed that both conditions are met.

Definitions and Notation

In a marksheet covering N scripts let p be the number of pass marks. Since the order of merit is random these passmarks could have been given, with equal probability, to any selection of p scripts from the total N . There are thus $N C p$ ways in which the passmarks could be distributed. We may conveniently think of the problem in terms of p iden-

tical balls placed in N boxes, with not more than one ball to a box.

In any distribution the balls fall into a number of separate runs. A run may have any number of balls from 1 to p . The integers representing these runs must of course add up to p . Each distinct way of dividing the number p into integers will be called a 'subdivision' of p , irrespective of the order in which the integers occur. As an example, $p = 4$ has the five subdivisions (4), (3, 1), (2, 2), (2, 1, 1), and (1, 1, 1, 1). In a row of 8 boxes these can be arranged respectively in 5, 20, 10, 30, and 5 ways to give a total of 70 (8C_4) distributions.

We adopt the following notation :

N = the number of boxes

p = the number of balls distributed in the boxes

q = the number of balls in a run, i.e. the 'order' of a run

r_q = the number of runs of order q in any distribution

r = the total number of runs, of all orders, in a distribution

R = the mean value of R , for a given N and p , taken over all possible distributions.

Any sub-division is specified by the set of numbers r_1, r_2, \dots, r_p (Which must include one or more zero values).

We note the following identities :

$$r_1 + r_2 + \dots + r_p = r \quad \dots (1)$$

$$r_1 + r_2 + \dots + p r_p = p \quad \dots (2)$$

The Relevant Formulae

1 Occurrence of a Particular Sub-division

Let p_s denote the probability that, in any trial, the sub-division specified by r_1, r_2, \dots, r_p will appear.

$$p_s = \frac{(N-p+1)! (N-p)! p!}{N! (N-p-r+1)! r_1 r_2 \dots r_p !} \quad \dots (3)$$

2. Occurrence of a Particular Number of Runs

Let p_r denote the probability that, in any trial, the distribution will consist of exactly r runs.

$$p_r = \frac{p! (p-1)! (N-p)! (N-p+1)!}{N! r! (r-1)! (p-r)! (N-p-r+1)!} \quad \dots (4)$$

Note : There appears to be no simple formula which gives S_p , the number of sub-divisions of p . As p increases from 1 to 10 the values of S_p are respectively 1, 2, 3, 5, 7, 11, 15, 22, 30, 42. Thereafter the increase is rapid, $S_{20} = 627$ and $S_{30} = 5603$. S_{60} exceeds one million and S_{100} is in the region of 370 million.

This gives the recurrence formula :

$$\frac{P_{r+1}}{P_r} = \frac{(p-r)(n-p-r+1)}{r(r+1)} \quad \dots (5)$$

3. Average Number of Runs Per Trial

$$R = \frac{p(N-p+1)}{N} \quad \dots (6)$$

4. The Distribution of r

The distribution curve of r can be constructed from Eq. (5), and when N and p are sufficiently large the curve is approximately normal. If the runs were independent random events the standard deviation of r with respect to R would have the value \sqrt{R} . In practice it is smaller by a factor K , and we may write

$$S(R) = \sqrt{R}/K \quad \dots (7)$$

Where $S(R)$ denotes the standard deviation.

To a first approximation K depends only on the ratio N/p . A survey of distributions between $N=100$ and $N=500$ gives the following empirical values for K , with sufficient accuracy for all practical purposes :

TABLE 1

N/P	K	N/P	K
2.0	2.00	5	2.5
2.5	2.04	6	2.7
3.0	2.12	7	2.9
3.5	2.20	8	3.1
4.0	2.30	9	3.3
4.5	2.40	10	3.5

5. Occurrence of Runs of a Particular Order

Let E_q be the expectation for runs of order q , defined as the average number of q -runs per trial.

$$E_q = \frac{(N-q-1)! p!}{(p-q)! N!} (N-p)(N-p+1) \quad \dots (8)$$

This gives the recurrence formula :

$$\frac{E_{q+1}}{E_q} = \frac{(p-q)}{(N-q-1)} \quad \dots (9)$$

6. Occurrence of Doubles

Let $E(2q)$ be the expectation for double q -runs. A double is a group

of two q-runs in the same trial. When more than two q-runs occur, each combination of two counts as a separate double,

$$E(2q) = \frac{(N-2q-2)! p!}{(p-2q)! N!} (N-p)(N-p-1) \left[3 + \frac{1}{2}(N-p-2)\right] \dots (10)$$

This gives the recurrence formula :

$$\frac{E[2(q+1)]}{E(2q)} = \frac{(p-2q)(p-2q-1)}{(N-2q-2)(N-2q-3)} \dots (11)$$

7. Occurrence of Triples

Let $E(3q)$ be the expectation for triple q-runs, i.e. three q-runs in the same trial. When more than three q-runs occur, each combination of three counts as a separate triple.

$$E(3q) = \frac{(N-3q-3)! p!}{(p-3q)! N!} (N-p)(N-p-1)(N-p-2) \times \\ (4 + 2(N-p-1)(N-p-3) + \frac{1}{6}(N-p-3)(N-p-4)) \dots (12)$$

This gives the recurrence formula :

$$\frac{E(3(q+1))}{E(3q)} = \frac{(p-3q)(p-3q-1)(p-3q-2)}{(N-3q-3)(N-3q-4)(N-3q-5)} \dots (13)$$

8. Occurrence of Assorted Pairs

Let $E(q_1, q_2)$ be the expectation of a set of two runs, of orders q_1 and q_2 which may or may not be equal. Let $q_1 + q_2 = j$. Any one value of E being known [e.g. from Eq. (10)] others may be found by changing q_1 and/or q_2 in accordance with the following rules and proviso :

$$\left. \begin{array}{l} (a) \text{ If } j \text{ is unchanged, } E \text{ remains constant} \\ (b) \text{ If } j \text{ increases by 1, multiply } E \text{ by } (p-j)/(N-j-2) \\ \text{Provided that} \\ (c) \text{ If the } q\text{'s are equal before the change, and unequal afterwards, the result must be multiplied by 2} \\ (d) \text{ Conversely, the result must be divided by 2} \end{array} \right\} \dots (14)$$

9. Occurrence of Assorted Triads

Let $E(q_1, q_2, q_3)$ be the expectation of a set of three runs, where the three q 's may or may not be equal and let

$$q_1 + q_2 + q_3 = j$$

Let X denote cases where the three q's are equal, Y denote cases where only two are equal, and Z denote cases where none are equal.

Any one value of E being known [e.g. from Eq. (12)] others may be found by changing the q's in accordance with the following rules and proviso :

- | | | |
|--|---|--|
| (a) If j is unchanged, E remains constant | } ... (15) | |
| (b) If j increases by 1, multiply E by $(p-j)/(N-j-3)$ | | |
| <i>Provided that</i> | | |
| (c) For a change X to Y the result must be multiplied by 3 | | |
| (d) | | |
| | Y to Z the result must be multiplied by 2 | |
| | Z to X the result must be divided by 6 | |

Analysis of Marksheets in Practice

In the above formulae it is necessary to bear in mind the distinction between probability and expectation. The probability of any event is the chance that it will appear in any trial, and can never exceed one. The expectation is the mean number of events per trial, which may be greater than one. For example, with $N=10$ and $P=5$, consider the incidence of runs of one ball only, which we may call 'singles'. The probability of finding at least one single in any trial is $36/42$ (as may easily be verified by enumerating the 42 possibilities). The probability of finding just one single is $15/42$. But the expectation is $70/42$, or $5/3$, showing that the mean number of singles per trial is 1.667.

For the events we are chiefly concerned with (long runs or multiple long runs) the expectation is usually much less than 1. The chance of two events occurring in the same trial is then very small, and the expectation is then effectively equal to the probability.

In an actual case the probability of the sub-division observed may be found from Eq. (3). There are usually a large number of comparable sub-divisions which might have appeared, of which the one observed may be regarded as a random specimen. This probability is therefore always small, and is of little interest. We have therefore to consider some special

Note : Some of the above formulae appear formidable, but in practice they are not difficult to handle. In applying them to an actual problem the factorials are written as products, and most of the terms usually cancel. The expressions can then be quickly evaluated with the help of a small calculator. In a complex situation the extreme simplicity of Eq. (6) is especially noteworthy. This makes it very easy to test whether the number of runs observed in marksheet is in reasonable agreement with expectation.

feature of the sub-division, of which the most important are (a) the total number of runs, and (b) the incidence of exceptionally long runs

The situation is similar to that which arises when a hand of cards is dealt. Observing what looks like a very improbable hand, we immediately suspect that the pack was not properly shuffled. But the probability that this particular collection of 13 cards will turn up conveys no information at all, since every hand, however extreme, has the same *a priori* probability ($1/6 \times 10^{-12}$). We have to concentrate on broader features, such as the occurrence of the four suits, or even one particular suit. Thus if a hand contains 9 cards of the same suit there are strong grounds for questioning whether this came from a thoroughly shuffled pack, since the probability of such a hand is only about $1/2700$. But if such a hand turned up only once in several thousand deals there would be no particular reason to question it. Even very unlikely occurrences, with a probability say $1/x$, will actually happen with a frequency of about once in x time if the trial is repeated often enough.

Similar consideration applies to marksheets. The conclusions to be drawn from the analysis will depend upon whether we are discussing a single marksheet or a large group of comparable marksheets. The larger the group the more likely it is that some improbable occurrence will appear by chance.

Two Case Studies

We now apply the method to two marksheets, both of which come from Assamese Paper II of the Gauhati Matriculation Examination, 1963. Both show a pronounced J-effect and therefore an unusually large number of passmarks. The data are as follows :

Examiner A : 250 scripts, 77 passmarks, 51 runs

$r_1=33, r_2=10, r_3=5, r_5=3$

Examiner B : 252 scripts, 64 passmarks, 45 runs

$r_1=34, r_2=8, r_3=1, r_6=1, r_8=1$

1. The Observed Sub-divisions

By Eq. (3) the probabilities of the observed sub-divisions are :

Case A..... $P_A=5.0 \times 10^{-6}$

Case B.. ... $P_B=1.3 \times 10^{-4}$

For reasons already discussed we expect these values to be very small, and they do not provide any significant information.

2. The Number of Runs :

Using Eq. (6) and Eq. (7), we compare the observed number of runs, r , with its expected value R :

Case A $r=53.6 \pm 3.4$

Case B .. $R=47.5 \pm 3.0$

In each case r differs from R by less than one standard deviation, which implies that the difference is not significant.

3. The Values of r_q :

Using Eq. (8) and Eq. (9) we find the expected values of this r_q 's and compare them with the observed values :

Case A R_1	r_2	r_3	r_4	r_5	
obs. 33	10	5	0	3	
exp. 37.2	11.4	3.5	1.0	0.3	
Case B r_1	r_2	r_3	r_4	r_5	r_6
obs. 34	8	1	0	1	1
exp. 35.6	9.0	2.2	0.6	0.13	0.03

The observed and expected values agree well enough except for the three 5's of Case A and the 5 and 6 of Case B. A chi-squared test suggests itself, but this is not applicable here, since chi-squared becomes very unreliable when the group frequencies are less than about 5. The best procedure is to examine the discordant values separately.

4. The Discordant Values of r_q

In Case A the expectation of three 5's is found from Eq. (12), and in Case B the expectation of the 5, 6 pair is found from Eq. (14), with the following results :

Case A . Exp. of 3 runs of 5 = $2.61 \times 10^{-3} = 1/384$

Case B . Exp. of the 5, 6 pair = $3.07 \times 10^{-3} = 1/325$

This calculation identifies both events as very improbable occurrences.

5. Discussion

In both of these cases, although the total number of runs is reasonably normal, the occurrence of long runs greatly exceeds expectation. The two events, the three 5's of Case A and the 5, 6 of Case B, are seen to be roughly comparable, almost equally unlikely. Such a rare event is to be expected by chance only once in three or four hundred times.

The two marksheets refer to the same paper in the same examination

The detailed records are no longer available, but the total number of marksheets is thought to have been about 80. The two marksheets were not taken at random from the collection of 80, but were selected as showing a prominent J-effect. This effect occurs when an examiner is unwilling to leave a candidate just below the pass limit, and rounds his marks up to 36, leaving say 33, 34 and 35 virtually unrepresented. The effect could be reproduced on to other marksheets by raising assigned marks of 33, 34 and 35 to 36. One could then test all the marksheets in the same way for unusually long runs of passmarks. This procedure was not carried out at the time, but if it had been it is very likely that other marksheets of the same kind would have been found. But at least we know definitely that an event which should not appear more than once in several hundred cases has actually occurred twice in 80 cases. The probability of the double occurrence is about 4 per cent, small enough to throw grave doubt on the reliability of the examining. Had this analysis been available at the time of the original examination, there would have been every justification for rejecting these marksheets and having the scripts re-marked by other examiners.

Finally, although we have dealt primarily with runs of passmarks, the method is clearly not confined to these. One could use it to study the distribution of failures, of first classes, or of marks within some specific range. The analysis of marksheets by various techniques should be one of the functions of an examination research unit, and the present method should be regarded as a useful and occasionally powerful tool to be used for this purpose.

References

- Taylor, H.J. *Operation Passmark*. University of Gauhati, 1963
 ——— and Tluanga. *The Persistence Effect in Marking*. University of Gauhati, 1965
 ———, ——— and Misra. *The Inconstant Examiner*. University of Gauhati, 1966.

Appendix

ENUMERATION OF ALL SUBDIVISIONS FOR THE CASE $N=20$, $P=10$

In the following Table the 'frequency' is the number of distributions corresponding to each sub-division. The total number of sub-divisions=42

TABLE

<i>Subdivision</i>	<i>Frequency</i>	<i>Subdivision</i>	<i>Frequency</i>
10	11	4,3,3	495
9,1	110	4,3,2,1	7923
8,2	110	4,3,1,1,1	9240
8,1,1	495	4,2,2,2	1320
7,3	110	4,2,2,1,1	13860
7,2,1	990	4,2,1,1,1,1	13860
7,1,1,1	1320	4,1,1,1,1,1,1	2310
6,4	110	3,3,3,1	1320
6,3,1	990	3,3,2,2	1980
6,2,2	495	3,3,2,1,1	13860
6,2,1,1	3960	3,3,1,1,1,1	6930
6,1,1,1,1	2310	3,2,2,2,1	9240
5,5	55	3,2,2,1,1,1	27720
5,4,1	990	3,2,1,1,1,1,1	13860
5,3,2	990	3,1,1,1,1,1,1,1	1320
5,3,1,1	3960	2,2,2,2,2	462
5,2,2,1	3960	2,2,2,2,1,1,1	6930
5,2,1,1,1	9240	2,2,2,1,1,1,1	11550
5,1,1,1,1,1	2772	2,2,1,1,1,1,1,1	4620
4,4,2	495	2,1,1,1,1,1,1,1,1	495
4,4,1,1	1980	1,1,1,1,1,1,1,1,1,1	11

Total number of distributions = 184756

□

The Effect of Abstractness and Correctness on Sentence Comprehension

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PSYCHOLOGICAL EFFECTS of linguistic abstractness and concreteness and its semantic correlates have been investigated in a series of recent experiments. For the most part concrete material has proved easier to learn and to retain than abstract material. This superiority stems from the fact that the former are likely to be encoded with two memory traces – verbal and visual—whereas the latter are encoded with only one memory trace, the verbal one, that both of these codes may be retained and that memory for either of the two codes will exceed the memory for the verbal label alone (Bower 1970). This dual coding model, suggested and most vigorously espoused by Paivio (1969) was further extended to sentence comprehension with the supposition that comprehension of abstract sentences depends largely on verbal associative reactions and the intra-verbal contexts whereas the comprehension of concrete sentences depends primarily upon non-verbal imagery. Thus it was argued that most effectively coded and remembered aspects of a concrete sentence will be its meaning. Since abstract sentences cannot be represented imaginally their specific wordings will be better recalled.

All of the earlier studies reported in this area have utilized the materials from English language. In the present study an attempt was made to study the comprehension of Hindi sentences which differ widely from English in both of their lexical and syntactical structures and also to evaluate applicability of the dual-coding model in explaining this. It was also thought that if the time allotted for a sentence is increased, the

*The author is thankful to Dr. (Smt.) P. Misra for her valuable guidance and to Dr. (Smt.) V. Agarwal, Head, Department of Psychology, Lucknow University, for her encouragement throughout this research project.

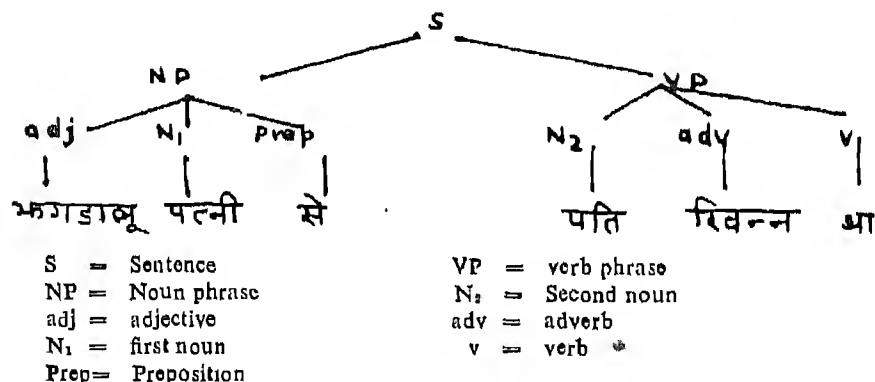
comprehension of the sentences will improve. Three hypotheses were drawn :

1. Comprehension of concrete sentences will be better than that of abstract sentence.
2. Meaning changes will be better detected in concrete sentences while wording changes will be detected better in abstract sentences.
3. Increased encoding time will positively influence the detection of changes in sentences.

Method and Design

Material

The experimental material consisted of 16 abstract and 16 concrete sentences* of the same structure. The following diagram shows the generative history and the structure of the sentences :



other experimental materials were Norelco cassette recorder (Model 1440, No. 2750) and a stop-watch.

Subjects

Fifty undergraduate students served as subjects. All were male and were within an age range of 18 to 22 years. Twenty-five subjects were randomly assigned to each of the two conditions.

Procedure

Initially 52 sentences were constructed and then rated by the experts twice : firstly on an abstractness-concreteness dimension with a three-

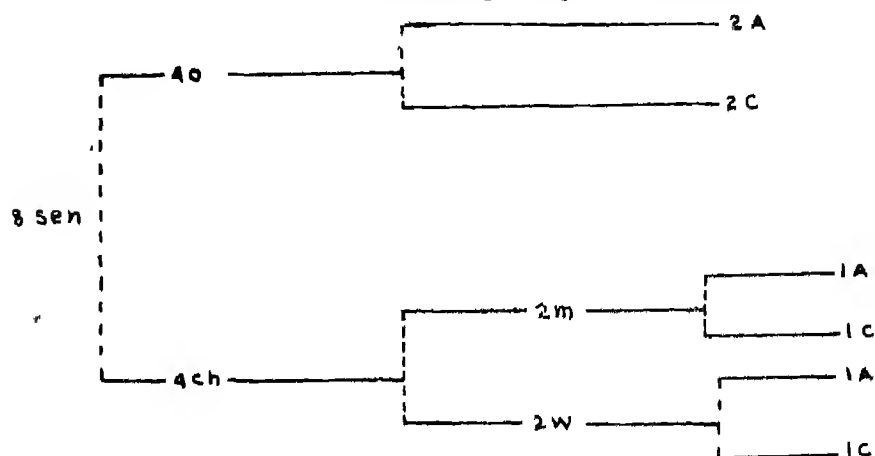
*The list of 32 sentences can be had from the author.

point scale and secondly for the ease or difficulty of their comprehension on a five-point scale. For the experiment, only those 32 sentences were selected which were unanimously rated as abstract or concrete and also which lay on the middle points of the difficulty scale. Two types of changes were applied to the original sentences to produce test sentences. Meaning changes were produced by interchanging the subject and object of a sentence while wording changes were made by the synonym substitution. These change rules were the same as used by Begg and Paivio (1969) and Pezdek and Royer (1974). For each sentence both meaning and wording changes were possible. The list of 32 sentences was sub-divided into four sets of eight sentences. Each set consisted of four abstract and four concrete sentences arranged randomly. All such sets were recorded on an audio-tape. For the experimental condition one time-gap between the sentences was 4 seconds and for the condition 2, it was 8 seconds.

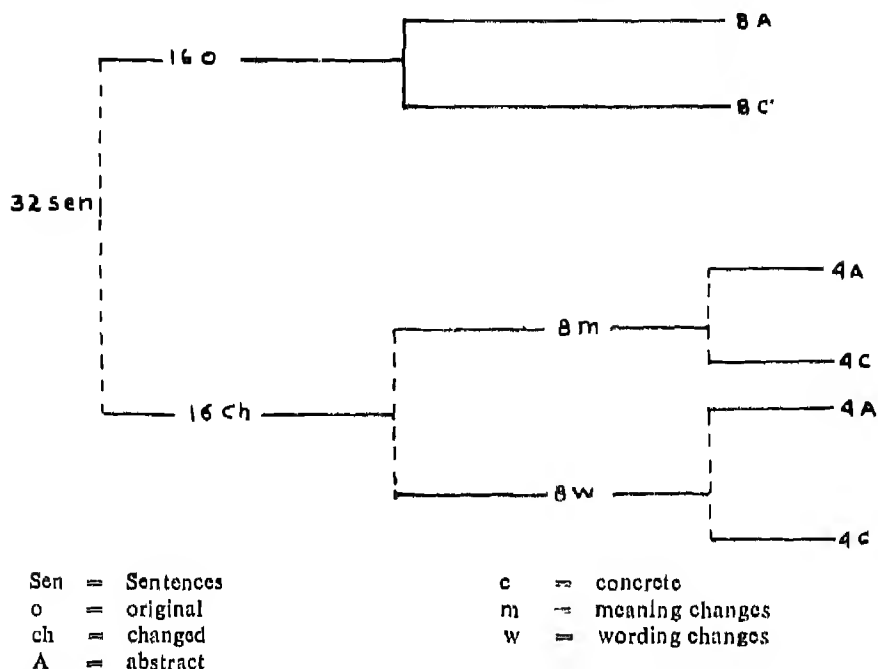
The experiment consisted of a familiarization task and an experimental task. The familiarization task consisted of two phases: an acquisition phase and a test phase. In the acquisition phase four abstract and four concrete sentences were presented on an audio-tape. Immediately after this presentation subjects were tested for recognition on the transforms or original sentences. The task of the subjects during test phase was to listen to each of the 32 sentences, decide whether it was m-change, w-change or original and check on the appropriate place on a response sheet.

The procedure in the experimental task was similar to that of the familiarization task. Four sets of sentences, each set consisting of eight

Pattern for Each Set during Recognition Phase



Overall Pattern for the Four Sets during Recognition Phase



sentences for acquisition, followed by a recognition test on those sentences were presented to the subjects.

Results

Two types of analyses were done to (i) assess the extent of comprehension for each abstract and concrete sentence, and (ii) to compare the two experimental condition which differed in their amount of encoding time. Firstly, mean scores for the 'hit' response, (i.e. correct identification of meaning or wording changes) and 'false alarm' (i.e. detection of change in an original sentence) were found out for each sentence. These mean scores show that in the first experimental condition meaning changes were identified better in concrete sentences and wording changes were identified better in abstract sentences. In the second condition (i) meaning changes were detected better than wording changes in both abstract and concrete sentences, and (ii) both meaning and wording changes were identified better in concrete sentences as compared to that in abstract sentences. False alarms for wording changes were almost twice as great as those for

THE EFFECT OF ABSTRACTNESS AND CONCRETENESS

meaning changes. They were also higher for abstract sentences as compared to that for concrete sentences. Those false alarms were more frequent when encoding time was 4 seconds than when it was 8 seconds. (Table 1, row 2). Probably subjects adopted some guessing technique when encoding time was comparatively shorter.

TABLE 1
MEAN SCORES FOR 'HIT' AND 'FALSE ALARMS'

Experimental Condition	Condition 1 (4 seconds)					Condition 2 (8 seconds)				
	A		C			A		C		
	M	W	M	W		M	W	M	W	
Row 1 (Hit)	13.0	14.25	15.5	14.5		13.75	12.5	15.5	13.5	
Row 2 (False Alarms)	4.12	6.75	1.87	3.87		3	5	1.5	3	

TABLE 2
EXPERIMENTAL CONDITION 1 (4 SECONDS ENCODING TIME)

Source	SS	df	MS	F	P
AC	7.66	1	7.66	2.32	NS
MW	0.88	1	0.88	—	NS
AC×MW	6.95	1	6.95	2.1	NS
Within	39.75	12	3.31		
Total	52.44				

When the data was again analysed according to the analysis of variance none of the main effects and interaction of the experimental condition 1 was found significant (Table 2). But in the second condition all the main effects were significant at .05 level. Effects of meaning and wording changes were highly significant, indicating that the subjects had a remarkable capacity for recognizing meaning changes, their recognition being not so good for wording changes.

TABLE 3
EXPERIMENTAL CONDITION 2 (8 SECONDS ENCODING TIME)

Source	SS	df	MS	F	P
AC	7.525	1	7.525	6.56	.05
MW	10.525	1	10.525	9.18	.05
AC×MW	.6	1	.6	—	
Within	13.75	12	1.146		
Total	32.40				

TABLE 4
EFFECTS OF DIFFERENT ENCODING TIME ON
SENTENCE-COMPREHENSION

Source	SS	df	MS	F	P
Time	2.005	1	2.005	1.00	NS
AC	15.130	1	15.135	6.7	.05
MW	4.505	1	4.505	2.2	NS
Time \times AC	0.000	1	0.000	—	NS
Time \times MW	6.125	1	6.125	2.75	NS
AC \times MW	4.505	1	4.505	2.2	NS
Time \times AC \times MW	1.115	1	1.115	1.00	NS
Within	53.50	24	2.23		
Total	86.88				

To compare the effects of different encoding time (4 seconds and 8 seconds) and their interactions with abstractness-concreteness and meaning-wording changes condition 1 and 2 were analysed together. Increased encoding time had significant effect on the comprehension of sentence type (Table 4). Mean scores suggested that there was a slight decrement in the detection of wording changes in both types of sentences when the encoding time was increased from 4 seconds to 8 seconds but this effect was not found significant after the analysis of variance.

Discussion

The basic proposition of the present investigation was that concrete and abstract materials differ mainly in their capacity to convey meaning which can be represented as mental images. Because of their greater capacity to elicit imagery which can mediate recall and recognition of associative material, the concrete sentences were hypothesized to be superior to abstract sentences as 'conceptual pegs'. This observed superiority in the comprehension of concrete sentences can be explained in terms of various factors; such as concrete sentences have greater meaning fullness (Winnick and Kusyszyn 1966), they are more reintegrative (Begg 1972) (i.e. one word in the concrete sentence acquires the capacity of evoking the complete picture by itself); they are organized in terms of 'iconic grouping', functionally unitary, integrated memory structures and they can be linked as semantic concepts and so serve as good relational connectives (Moeser 1974). Abstract sentences on the other hand are harder to comprehend because they put greater load on memory. Hence each word has to be remembered as separate entities. Also they are more context-dependent (Klee and Eysenck 1973) and are more complexly derived (Kintsch 1972).

The second hypothesis which was about the interaction of type of change and abstractness-concreteness, was not confirmed. In the experimental condition 1, there was a hint that m-changes were detected better in concrete sentences whereas w-changes were detected better in abstract sentences.

But in the experimental condition 2 this interaction was not observed. It was seen on the other hand that subjects identified more correctly both m- and w-changes in concrete sentences. Even in abstract sentences their memory for m was better than that for w. Subject's recognition for w-changes rested at a chance level of performance. This accords well with Anderson and Bower's (1973) proposal that linguistic information is attached 'parasitically' to the perceptually based memory system and that the basic organization of the memory component is semantic. Moeser (1974) also found that his subjects were better at identifying both m- and w-changes in concrete sentences, and they took significantly longer time to encode and decode abstract sentences.

Another reason for the better detection of meaning changes might be the fact that subject-object reversal produces greater semantic and syntactic changes in a sentence than does the synonym substitution, for example, this sentence :

क्रोधित सेवकों से गृहस्वामी पिट रहा था

becomes

क्रोधित नौकरों से गृहस्वामी पिट रहा था ।

after synonym substitution. But after subject-object reversal it becomes

क्रोधित गृहस्वामी से सेवक पिट रहे थे ।

Besides inducing changes in meaning, subject-object reversal also initiates a process of corresponding changes in the verbs, adverbs and adjectives of the sentences. These peculiarities inherent in the Hindi language might account, to some extent, for the differences observed in this study from those which utilized the materials of English language.

Lastly, an attempt was made to compare the effects of different encoding time on sentence comprehension. It was seen that increased encoding time resulted in a slight decrement of the detection of wording changes. This indicates that specific wordings of a sentence are remembered for a very short period of time whereas the basic ideas can be stored for longer durations.

Variability in subjects' ability to comprehend the sentences and detect the changes was also large. This suggests that individual difference in imagery and verbal ability may be of considerable importance. In the present experiment it was noticed that about four to five of the 25 subjects

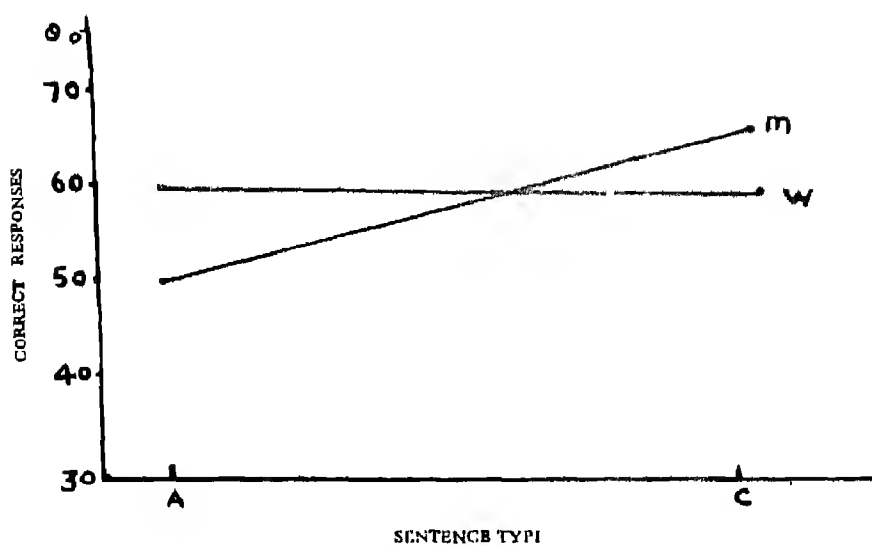


FIG. 1. Per cent correct responses for abstract and concrete sentences in condition 1

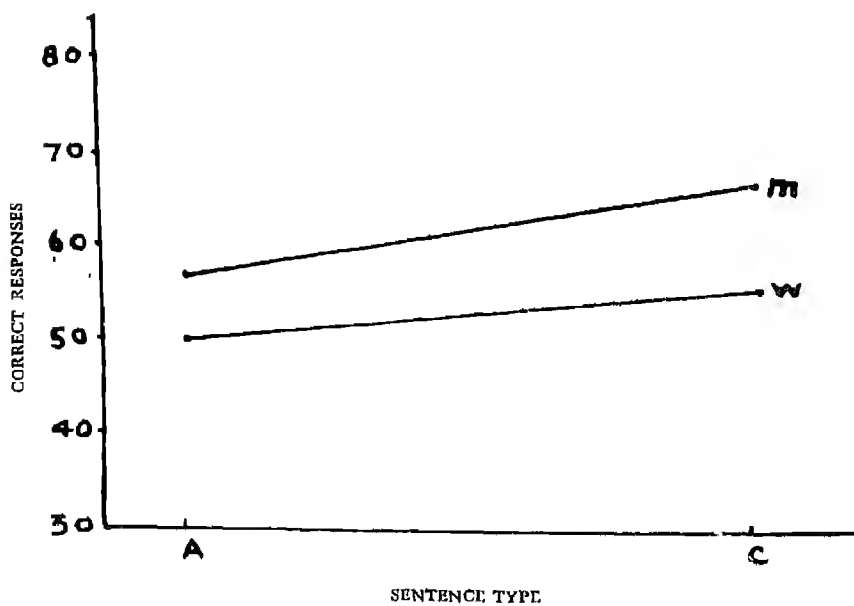


FIG. 2. Per cent correct responses for abstract and concrete sentences in condition 2

in each condition identified all the sentences correctly. On the other hand, there were some subjects, two or three in each condition, whose total correct responses were only 25 per cent, which is much below the chance level.

References

- Anderson, J. R. and Bower, G. H. *Human associative memory*, Washington, D. C. : Winston, 1973
- Begg, I. Recall of meaningful phrases. *Journal of Verbal Learning and Verbal Behaviour*, 1972, 11, 431-439
- Recognition memory for sentence meaning and wording. *Journal of Verbal Learning and Verbal Behaviour*, 1971 10, 176-181
- and Paivio, A. Concreteness and imagery in sentence meaning. *Journal of Verbal Learning and Verbal Behaviour*, 1969, 8, 821-827
- Bower, G. H. Imagery as a relational organizer in associative learning. *Journal of Verbal Learning and Verbal Behaviour*, 1970, 9, 529-533.
- Kintsch, W. Abstract nouns : Imagery versus lexical complexity *Journal of Verbal Learning and Verbal Behaviour*, 1972, 11, 59-65
- Klee, H and Eysenck, M W Comprehension of abstract and concrete sentences. *Journal of Verbal Learning and Verbal Behaviour*, 1973, 12, 522-529
- Kusyszyn, I and Paivio, A Transition probability, word order and noun abstractness in the learning of adjective-noun paired associate. *Journal of Experimental Psychology*, 1966, 71, 800-805
- Mooser, S. D. Memory for meaning and wording in concrete and abstract sentences. *Journal of Verbal Learning and Verbal Behaviour*, 1974, 13, 682-697
- Paivio, A Mental imagery in associative learning and memory. *Psychological Review*, 1969, 76, 3, 241-263
- Pezdek, K., and Royer, J M. The role of comprehension in learning concrete and abstract sentences. *Journal of Verbal Learning and Verbal Behaviour*, 1974, 13, 551-558
- Winnick, W. A and Kressel, K. Tachistoscope recognition thresholds, P-A learning and immediate recall as a function of abstractness-concreteness and word frequency. *Journal of Experimental Psychology*, 1965, 70, 163-168. □

Ph.D. Theses Abstracts

A Study of Some Factors Affecting Student Involvement in Studies

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IN THIS INVESTIGATION 'involvement' has been defined as an identification with the task to be accomplished. The degree of involvement is determined by (i) number of needs satisfied, and (ii) the extent of their satisfaction through the performance of the task. The main objectives of the present study were :

1. To study the relationship of involvement in studies with certain background variables, such as sex, birth order, caste, type of school, SES, and geographical location of school.
2. To establish the relationship of involvement in studies with the measures of intelligence, level of aspiration, social desirability and the scholastic achievement.
3. To find out the psychological traits of students having high and low involvement in studies.
4. To determine the relative contribution of the independent variable in predicting the criterion variable.
5. To develop a valid and reliable inventory for measuring student involvement in studies.
6. To attempt to evolve a model of involvement in studies on the basis of the findings of this investigation.

*Thesis submitted to Indian Institute of Technology, New Delhi, 1979

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Hypotheses

Hypothesis

- (a) Certain background variables like sex, birth order, caste, etc. are related to the involvement in studies.
- (b) Students in high and low involvement groups differ as regards to these background variables.

Hypothesis 2

- (a) Level of aspiration is related to involvement in studies.
- (b) Social desirability is related to involvement in studies.
- (c) Characteristics preferred by parents are related to involvement in studies.
- (d) Fourteen personality factors like sociability, ego-strength, excitability, etc. measured by HSPQ are related to involvement in studies.
- (e) High and low involvement groups differ as regards to these psychological variables.

Hypothesis 3

- (a) Student achievement in school subjects is related to involvement in studies.
- (b) Students showing high and low involvement in studies differ as regards to their scholastic achievement.

Hypothesis 4

- (a) Intelligence of a student is related to the level of involvement in studies.
- (b) High and low involvement students will show a significant difference in their intelligence.

Hypothesis 5

- (a) Background, psychological and scholastic achievement variables will predict student involvement in studies.
- (b) High and low involvement groups will differ as regards to certain background, psychological and scholastic achievement variables in a multivariate combination.

Hypothesis 6

High and low involvement groups differ as regards to satisfaction of ten need areas taken into consideration for the study.

Procedure

To test the hypotheses put forward seven tests, inventories and questionnaires were used to collect data on various variables included in the study.

Sample

The sample for the study was drawn from the students, both boys and girls of Class X (N=600) studying in 15 higher secondary schools of Delhi, on the basis of quota random sampling.

Development of Study Involvement Inventory

It was necessary to develop the Study Involvement Inventory (sii) as no such instrument was available for the present investigation.

Method

The *sii* is based on Murray's (1938) concept of psychological needs. Ten needs taken into consideration were . n-abasement, n-achievement, n-affiliation, n-aggression, n-autonomy, n-difference, n-nurturance, n-order, n-recognition, and n-succorance.

One hundred and eighty open-ended items were prepared on the basis of certain aspects of involvement in studies. This first draft was administered on a group of 240 students of Class X of nine schools of Delhi.

Content Analysis

Content analysis of the data was done and the responses were categorized in ten need areas as mentioned above. Seventy-eight statements were selected for the second draft. This draft was then given to a panel of judges which consisted of 33 experts in the area of psychology to evaluate each statement in two respects :

1. Whether the statement indicates involvement in studies or not.
2. To classify each statement in one of the ten need areas.

Forty items were selected on the basis of the judges' agreement and chi-square test. Likert-type format with three response scale, namely, 'yes', 'undecided', and 'no' was adopted.

Reliability and Validity of the SII

Test-retest reliability	= .87
Split-half reliability	= .67
N	= 150

The content and consensual validity of the inventory seem to be fairly high. Factor analysis was done for confirmatory purposes. A four-factor resolution emerged.

The first rotated factor denotes hardwork, strong urge to achieve and be recognized, sense of commitment, deference for superiors, affiliation, and socially desirable trait of orderliness. This principal factor may be named the *involvement* factor. The remaining three factors were not meaningful and hence have not been explained.

Major Findings and Conclusions

1. The study reveals varying degrees of correlation of involvement in studies with certain background variables : sex, caste, type of school and geographical location of school.

- (i) The results show that the girls are more involved in studies as compared to boys. Perhaps this is because girls find more satisfaction of their needs through studies than boys who have a broader field of activities and seek need gratification elsewhere.
- (ii) The non-scheduled caste students show more involvement than the scheduled caste students. This may be because of the different sets of social values, attitudes, and aspirations, etc. held by these two groups. Furthermore, a large number of scheduled caste students are first generation learners, whose parents' attitudes and value orientation may also affect their behaviour.
- (iii) The students from urban schools show more involvement than the students from rural schools. It seems that the present-day educational curriculum, which is uniform for all, caters more to the personal, social and vocational needs of the urban and middle class children than to the rural and lower class youth. Time and again, it has been reiterated that school curriculum should be planned and implemented according to the needs of all the students.
- (iv) It seems that the Public (private) and the Central schools provide more need satisfaction than the Government and private aided schools. The type of school environment, attitudes and behaviours of teachers towards each other and towards students may be responsible for this difference. Intervening variables like socio-economic environment at home, educational levels, and occupational value systems and set of attitudes held by parents of the students may be some other important factors leading to this difference.

2. Though the findings reveal that students having high involvement in their studies are outgoing, warm-hearted, easy-going, conscientious, persevering, rule-bound, have stronger super-ego strength, are venturesome, socially precise, self-disciplined, and have high self-concept control, sex differences, are obvious on adventurousness, super-ego strength, self-sufficiency, sensitivity and passive individualism. On the first three characteristics boys show higher score whereas on the last two girls show higher score. This may be due to the difference in the process of socialization of both these sexes. Boys are given more freedom and are allowed more permissive behaviour, adventure and risk-taking than girls who are overprotected and negatively reinforced for hyperactivity and certain types of behaviour.

3. Boys having high involvement in studies show more socially desirable behaviour than girls. Social change which is taking place rapidly in the country seems to be responsible for new roles for girls in the society who are giving up the traditional age-old feminine roles. Also boys belonging to both high and low groups, show higher level of aspiration than girls. The reason of this may again be inherent in the social pattern in which boys are positively reinforced for broader range of goals. Though girls are also striving hard to attain new goals and tread over new paths, some traditional values and role perceptions are still held by parents and a majority of girls themselves.

4. High involvement and low involvement groups do not differ as regards the perception of the characteristics preferred by parents which is perhaps not indicative of the actual characteristics preferred by parents. Some difference would have been evident if this information was collected from the parents themselves.

5. Results of the study show that there is a highly significant relationship between intelligence and involvement in studies. These findings are in line with the cognitive explanation of study involved behaviour. An individual having higher intelligence can have a better subjective probability estimate of the protential satisfaction of various needs through certain goal-directed behaviours and can take correct decisions in order to attain the desired goals.

6. It has been observed that these three sets of variables, namely, background, psychological and scholastic achievement variables contribute in the prediction of involvement in studies (though a certain variables in each set do not account significantly for variance in the criterion variable). The psychological variables account for maximum variance (11.8 per cent), scholastic achievement variables come next (8 per cent variance) and background variables explain 6 per cent of the variance. All the three sets

of variables when considered jointly account for 18.4 per cent of the variance. Significant predictors of involvement in studies are : Hindi, super-ego strength, sociability, self-control, geographical location, SES and sex of student in that order. This shows the importance of extrinsic and intrinsic motivation in determining involvement in studies.

7 In this research a high positive relationship is found between satisfaction of students various psychological needs and their academic achievement which suggests that in an attempt to foster higher achievement and learning among students, educators should create more satisfying school environment through meticulously planned curricular experiences which accommodate students' personal need dispositions, so that they find the environment more satisfying and stimulating regardless of such personal characteristics as sex, intelligence, family background, etc



A Study of Non-Normal Children in Relation to Home Environment and Special Care Programmes

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THE NEED FOR training of non-normals (developmentally handicapped) has been recognized recently. Surveys have shown that 2.3 per cent of the total population of the country are intellectually handicapped which indicates the figure about 13 millions (Nimbkar 1976). She further states that of these 95 per cent can be trained and educated and only 5 per cent need custodial care (Kaur 1974). Thus, the studies on present training system show that there is a need for developing a satisfactory training programme for these children.

The field of special education appears to be the step-child of prevailing research effort in the country. The present available researches in the area of learning process in special education and parent education programmes are very limited. Nair (1970) opines that the available researches in these areas are either exploratory or at very superficial level. Therefore, there is need of intensive experimental research studies in the field.

Statement of the Problem

The title of the experimental investigation is :

Study of Non-normal Children in Relation to Home Environment and Special Care Programmes

The term non-normal in this study has been used in place of mental retardation. These children are non-normal in terms of delay in normal growth of physical, socio-emotional, intellectual and communication skills.

*Thesis submitted to M.S. University, Baroda (1978)

Objectives

- 1 To study the possibilities of developing skills in the subjects residing in residential institution of non-normals. To study skills in terms of physical, socio-emotional, intellectual and communication.
2. To study the home environment of the subjects
3. To develop curriculum for the small group of institutionalized subjects (non-normals). The curriculum will include total programme offered to the group.
4. To develop case studies of the subjects.

The Pilot Study

The pilot study in terms of preliminary trial was conducted for development of sound research plan. It was conducted in two parts: (i) Study of subjects' home environment, and (ii) the development of the programme (treatment). The data about home visits was collected through home visits.

The study of home environment revealed that home has a great influence on the child. In most of the case studies, it was indicated that more the anxiety in parents, more the child either cared or rejected. It was found that child's behaviour in the institution is the reflection of home environment. Thus, it was concluded that knowledge about home environment was necessary to understand the factors responsible for the child's behaviour. The second part of the study revealed that experiences related to pre-school programme were found useful in improving skills in children.

The Final Study

Based on the results of the pilot study, a suitable curriculum to be used with the non-normal children in the final study was developed. The final study was designed based on the following guidelines obtained through pilot study :

1. The sample size had to be restricted to ten children as these children are likely to be handicapped on physical, socio-emotional, intellectual and communication skills.
2. A residential institution should be selected to conduct the experiment for the final study.
3. It is necessary to conduct an experiment for longer period as these children take longer time to learn.

4. Individual treatment is necessary to prepare the group for learning
5. Home visits are essential to obtain first-hand information about home environment of the children.
6. Group treatment should be based on recreational group experiences.

Development of the Curriculum

The curriculum development in the present study aimed at developing overall development of a child. It was formulated with a purpose of providing individual and group treatment to facilitate maximum participation in the group. Seventy activities were identified. Activity analysis was done with the help of four experts and preliminary try-out was done in another institution. The final list of 50 activities was prepared under the guidance of experts in the related field. Three factors were considered significant while developing curriculum: (i) What to accomplish, (ii) the sequence of programme, and (iii) approach media, aids, etc. A few changes in the activities were made according to the needs of the group identified during the programme.

Methodology

Sample

A total ten children of two categories, (i) trainable and (ii) educable were selected in the present study.

Tools

The tools measuring the overall development of a child in various dimensions—physical, social, emotional, intellectual and communication—were not available in the market. Hence, the following four tools were prepared for the present study: (i) Interview Guide: This tool was prepared to collect data from the parents of the subjects. (ii) Periodical Development Evaluation (PDE): This tool measured the expected skill in the subjects. The skill was prepared in the area of physical, social, emotional, intellectual and communicative skills. (iii) Case Observation Records (COR): This tool was prepared to collect the data on the dimension mentioned above, for studying the learning process and the activities suitable to the group. (iv) Institutional Observational Schedule (IOS): This tool aimed to collect the background information about the institution and the subject.

Treatment

The developed curriculum was implemented to the sample for a period of 20 weeks.

Collection of Data

Both quantitative and qualitative data were collected. The quantitative data were obtained through the tools PDE and COR. The qualitative data were obtained through COR, IOS and interview guide for the parents.

Analysis of Data

1. *Quantitative analysis* : Simple statistical techniques like mean, SD and analysis of variance were used to study the overall development of subjects on account of the programme offered to the group.

2. *Qualitative analysis* : An intensive case study was developed to understand and examine the behaviour of individual subjects within the treatment period.

Findings

1. Physical Skills

The physical development indicated significant improvement in gross motor and finer muscular skills. The weekly and periodical evaluation data indicated significant gain at .01 level in the development of physical skills. The possible reasons for the success of physical skills may be due to (i) individual attention, (ii) provision of simple and complicated play experiences, and (iii) the use of aide during implementation of the programme.

2 Emotional Skills

The emotional development consists of three aspects of emotions: (i) independent in work, (ii) behavioural characteristics and (iii) expression of emotions in terms of response towards adults, subjects, and activities. The results of weekly and periodical evaluation revealed significant improvement in the subjects. This may be on account of (i) case study approach, (ii) provision of expressive activities and (iii) supportive approach.

3. Social Skills

The social skills included two aspects, (i) adjustment and (ii) socialization skills. Periodical and weekly evaluation of social skills revealed significant improvement. (01 level) in the subjects. The attributing

factors towards positive change in the subjects are likely to be (i) provision of recreational experiences, (ii) structured group programme, and (iii) integrated experiences offered to the group.

4. *Speech and Communication Skills*

The result of this dimension revealed significant gain (.01 level) in weekly and periodical evaluation. It was felt that case study approach and overall programme provided maximum opportunities for verbal interaction to the group.

5. *Mental Skills*

This dimension consisted of (i) concept formation and (ii) general awareness. The results obtained in weekly and periodical observation revealed significant gain (.01 level) in the subjects. The possible reasons attributed towards the achievement of these skills may be (i) readiness of the group to learn, (ii) learning through direct experiences, (iii) intellectual capacity in the subjects, and (iv) reinforcement of learning.

6. *The Home-Environment · The Parents*

The information about the parents' interest in child indicated genuine concern in helping him to make his life happy. This was expressed by showing readiness to discuss with teachers regularly, paying visits to the child and providing him better training, if available in another institution. The interest of the parents also throws light on their expectations from the child. It indicated that they were unaware about the degree of disability in their child and expected him beyond his capacity.

□

Factorial Structure of Teaching Competencies among Secondary School Teachers

RAMA MATHEW

THE PRESENT STUDY purported to identify teaching competencies among secondary school teachers. More specifically, it was addressed to the following two questions .

- (i) What are the desirable competencies of physics teachers of Standard IX ?
- (ii) What are those specific teacher behaviours which describe each of these competencies ?

In order to answer these questions, the study adopted two approaches : First, the different presage, process and product variables of teaching were measured and factor analysed to arrive at the set (s) of desirable teaching competencies. Second, the views expressed by the students of Standard IX about their physics teachers were content analysed and a profile of a competent physics teacher was developed. The purpose of adopting the second approach was to validate the competencies identified through the first approach and make the results and their interpretation more meaningful and comprehensive.

The different variables included in the study are as follows : Four presage variables (teacher's intelligence, his attitude towards and interest in teaching and self-perception of his teaching behaviour), 86 teacher classroom behaviours under the process variable, and one product variable (students' liking for their teacher). In all, 117 variables were included in the study

Based on a review of literature, efforts were made in this study to arrive at a comprehensive definition of teaching competency which could accommodate the changing conceptions of what teaching is, and the

*Thesis submitted to M. S. University of Baroda (1979)

different presage, process and product variables of teaching. The definition is given below :

Teaching competency is the ability of a teacher manifested through a set of overt teacher classroom behaviours which is a resultant of the interaction between the presage and the product variables of teaching within a social setting.

The Objective

The study aimed at achieving the following objective : To identify a set of desirable teaching competencies of physics teachers of Standard IX.

Basic Assumptions

The study is based on the following assumptions :

1. Teaching competency is an ability of the teacher and it manifests through his classroom teaching behaviour.
2. The behaviour of the teacher in the classroom is the most direct evidence that one can appeal to in a search for teaching competencies.
3. The behaviour of the teacher is capable of being observed by a trained observer.
4. The different sections of Standard IX are homogeneous in respect of pupils' ability, their socio-economic status, the classroom environment, the physical equipment, etc.

The Scope of the Study

1. The findings of the study are applicable to only the physics teachers of Standard IX of the secondary schools of an urban area like the city of Bangalore
2. Since this study is the first of its kind, the findings may be treated as explorative rather than conclusive.

Limitations of the Study

1. The topics in physics that were taught at the time of data collection are considered representative of the entire syllabus of physics of Standard IX.
2. Every teacher was observed only once for a period of 30 minutes in his class due to lack of resources. The behaviours that he exhibited in this period are taken to be representative of the universe of his teaching behaviours.

The Sample

The sample for the pilot study consisted of 23 teachers of classes VIII, IX and X teaching the subjects of English, science, mathematics and social studies through the medium of English in five secondary schools of the city of Baroda and their 241 students

For the final study, the sample comprised 130 teachers of Standard IX, teaching physics through the medium of English in 79 secondary schools of the city of Bangalore. As regards the sample of students, 2305 students were randomly chosen to respond to the student liking scale; 100 students were selected and interviewed on a semi-structured interview schedule to gather data regarding their views about their physics teachers

The Tools

In all, seven tools were used to collect data regarding the different presage, process and product variables of teaching. The tools employed, the variables studied and the respective sample are presented in the table.

TABLE
THE TOOLS USED, THE VARIABLES STUDIED AND
THE SAMPLE OF THE STUDY

S. No.	Tool	Variable	Sample	Total No. of Variables
1.	The Standard Progressive Matrices, Sets A, B, C, D and E	Presage	Teachers	1
2.	Teacher Attitude Scale	Presage	Teachers	1
3.	Interest Inventory for Teachers	Presage	Teachers	1
4.	Teacher's Self-Rating Scale	Presage	Teachers	14
5.	Observation Schedule	Process	Teaching-learning situation	86
6.	Student Liking Scale	Product	Students	14
7.	Interview Schedule	Product	Students	—
Total				117

Statistical Techniques Employed

To study the factorial structure of teaching competencies, the principal component method of factor analysis was employed. The factors thus extracted were rotated through the varimax method for a meaningful interpretation of the factors.

The views expressed by the students about their physics teacher in response to an open-ended question in the student liking scale and to the

interview were content analysed in order to develop a profile of a competent physics teacher.

Conclusions

The factor analysis of the data resulted in 14 factors which accounted for 68.30 per cent of the total variance. The varimax rotated factors were named as follows : (i) General teaching competency, (ii) Competency of teacher concern for students, (iii) Competency of using audio-visual aids, (iv) Competency of professional perception, (v) Competency of giving assignment, (vi) Competency of illustrating with examples, (vii) Competency of pacing while introducing, (viii) Competency of logical exposition, (ix) Competency of classroom management, (x) Competency of the use of questions, (xi) Competency of initiating pupil participation, (xii) Competency of the use of black-board, (xiii) Competency of recognizing attending behaviour, and (xiv) Competency of achieving closure.

It was found that these 14 competencies related very closely with those expected of teachers by their students discussed under 'A profile of a competent physics teacher'. But some aspects discussed under the 'profile' have not been covered by the factorial structure of teaching competencies. These are humour, correct pronunciation and good accent, impartiality, knowledge of subject-matter, punctuality, giving notes, and repetition of the lesson when necessary. This was due to the fact that the variables included for factor analysis were limited in scope depending on the frame of reference of available literature and the extent of thinking done by the investigator. On the other hand, the aspects discussed under the 'profile' were based on the free expression of students and thus were unlimited in scope due to the nature of the tools employed to gather the data.

However, the knowledge generated by the students' views about their teacher throws light on the possibilities of effects the teacher might produce on students as a result of certain of his characteristics. This would also give the teacher an idea about the role expected of him by his students

Thus, the factorial structure of teaching competencies was validated by the profile of the teacher portrayed by the students. Further, the teaching skills and their respective components which formed the basis of the observation schedule were validated through this study. It was found that the extracted factors, by and large, accounted for the same variables as the components conceptualized under each of the skills. Thus, the theoretical model hypothesized by other researchers was empirically demonstrated to a considerable extent in this study

The conclusions of this study have implications related to teacher training institutions, school systems and research on teaching.

A Study of Creativity in Relation to Adjustment, Frustration and Level of Aspiration

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AN INTENSIVE survey of related literature revealed that a number of investigators had found adjustment, frustration and level of aspiration as potential correlates of creativity. Terman (1925), Shannon (1947), Roe (1953), Mackinnon (1962), Parloff and Datta (1965), Hinton (1966), Raychaudhury (1966), Turner (1967), Foster (1968), Mishra (1969), Nair (1975), Gupta (1975), Frost (1976), Dharmangadan (1976), Sinha and Sharma (1978), and Singh and Singh (1979), etc. had studied adjustment, frustration and level of aspiration separately as correlates of creativity. Their inconsistent and inconclusive results necessitated further research to explore relationship between creativity and these variables.

Objectives

The study was carried out to achieve the following objectives :

1. To find out the nature and extent of the relationship between (a) creativity and adjustment, (b) creativity and frustration-reactions (regression, fixation, resignation and aggression), and (c) creativity and level of aspiration.
2. To find out the extent to which high and low creative students differ in respect of adjustment, frustration-reactions (regression, fixation, resignation and aggression) and level of aspiration.
3. To study prediction of creativity, i.e. to establish regression equations between creativity as criterion and adjustment, frustration-reactions (regression, fixation, resignation and aggression) and level of aspiration as predictors.

*Thesis submitted to Agra University (1979)

Hypotheses

The following null-hypotheses were framed .

1. There exists no significant relationship between creativity and adjustment. The high and low creative students do not differ significantly in their adjustment.
2. There exists no significant relationship between creativity and frustration-reactions. The high and low creative students do not differ significantly in their frustration-reactions.
3. There exists no significant relationship between creativity and level of aspiration. The high and low creative students do not differ significantly in their level of aspiration.
4. All the predictors of creativity under the study, i.e. adjustment, frustration-reactions and level of aspiration influences it in the same manner and are equally important.

Method

Under the descriptive method of research, differential and correlational techniques were used to carry out the study which was *ex post facto* in nature

Tools

The following standardized tools were used :

1. Verbal test of creative thinking by Mehdi
2. Adjustment inventory by Sinha and Singh
3. Frustration scale by Chauhan and Tiwari
4. Level of Aspiration Test by Shah and Bhargava.

Sample

Random sampling procedure was used to select 600 male students of Classes IX and X from literary and scientific groups of the secondary schools of Agra city.

Statistical Methods

Frequency distribution, percentage, mean, SD t-test, product moment correlation, multiple regression equation and multiple R were used for the analysis of data.

Findings

1. Creativity was found to be positively and significantly related to total, social and educational adjustments at .05 level. But creativity was

not found to be significantly related to emotional adjustment.

2. No significant relationship was found between creativity and frustration-reactions, i.e. regression, fixation, resignation and aggression

3. No significant relationship was found between creativity and level of aspiration.

4. The high and low creative students were found to differ significantly in their total, emotional and educational adjustments at .05 level. But they were not found to differ significantly in their social adjustment.

5. The high and low creative students were not found to differ significantly in their regression, fixation and resignation. But they were found to differ significantly at .05 level in their aggression.

6. The high and low creative students were not found to differ significantly in their level of aspiration.

7. All the predictors, i.e. adjustment, frustration-reactions and level of aspiration were not found to influence creativity in the same manner. The role of adjustment, aggression and level of aspiration was positive in nature but dissimilar in numerical weights. The role of regression, fixation and resignation was found to be negative in nature but dissimilar in numerical weights. The value of multiple R between creativity and the group of adjustment, aggression and level of aspiration was found to be significant at .05 level. Rest of the R's were found to be non-significant.

Conclusions

1. There exists positive relationship between creativity and adjustment except in the case of emotional adjustment.

2. No relationship exists between creativity and frustration-reactions.

3. Level of aspiration is not related to creativity.

4. Total, emotional and educational adjustments are differential correlates of high and low creative students.

5. Aggression functions as a differential correlate of high and low creative students. Other frustration-reactions, i.e. regression, fixation and resignation are not their differential correlates.

6. Level of aspiration is not a differential correlate of high and low creative students.

7. The predictors, i.e. adjustment, frustration-reactions and level of aspiration do not tend to influence the criterion variable, i.e. creativity in the same manner. Their regression coefficients also do not seem to be exactly equal in value.

A Study of Personality Traits of Student Leaders and Non-Leaders of Selected Indian Universities and their Expressed Opinion towards Leadership Traits

BHAGAWAT SINGH

THIS INVESTIGATION was started mainly with the object to study the differences in personality constituents of student leaders and non-leaders based on Cattell's sixteen personality factors. Differences in intelligence between the two groups were studied on the basis of 16 PF test (factor B—intelligence) and the results were further verified by Joshi's group test of general mental ability.

As it was felt that some important facts may be revealed by the two groups' expressed opinion towards leadership traits, hence the differences between expressed opinion of the leaders and non-leaders towards leadership traits were studied with the help of a Leadership Attitude Inventory (LAI). Some allied variables associated with student leadership, such as academic achievement, socio-economic status, birth order, political consciousness and other background factors were also studied on the basis of the data obtained from the General Information Sheet.

Research Design

The present investigation was an empirical study based on a fairly large sample. The sample consisted of 200 student leaders and 500 non-leaders and was drawn from six selected universities of Uttar Pradesh—the Banaras Hindu University, the Kashividyapith, the Varanaseya Sanskrit University, Varanasi, and the universities of Allahabad, Lucknow and Gorakhpur. The sample of student leaders was selected on 'positional' basis. Thus, in selecting the leader group sample, a leader was taken to be a person who held an office in the student unions inside the university

*Thesis submitted to the Banaras Hindu University (1975)

campuses or student wings of different political parties. The non-leaders selected for this study were students who were not holding any office by election. Here, it may be stated that it was not possible to randomize the population of student leaders because of their lower incidence in each university. Further, they were not easily available due to situational crisis created by ordinance¹ of voluntary student union membership imposed on all the universities² of Uttar Pradesh during the period of data collection (1969-1971), hence, the incidental-cum-purposive sampling technique based on normative survey was adopted in case of both groups: leaders and non-leaders. An attempt was made to make the sample fairly representative.

Limitation of the Study

The main limitation of the study was that adequate sample of post-graduate science leaders was not easily available on account of comparatively low incident of leaders. Another limitation was that youth wings of service clubs, e.g. Rotaract and Interact, cultural groups, subject associations, Alumni associations were not included in this study. The third limitation was that this study was done only on male leaders and non-leaders as women leaders are still quite rare in our universities. During the period of investigation, hardly any university-level female student leader emerged. There were only one or two girl student leaders in some of the universities under study but they also could not be deemed as university-level leaders. Hence sex comparison could not be done.

Analysis of the Data

The study of difference in personality traits was done according to the distribution of the two sample groups on the basis of institution/university level of education, age, income, residential background as well as on the total population of the leaders and non-leaders as a whole. The study of differences in intelligence was analysed in terms of total population as a whole as well as according to the university-wise distribution. The study of expressed opinion towards leadership traits was done on the basis of leaders and non-leaders as a whole and on their level of education. The analysis of allied variables and other background factors was done mainly

¹Student membership in student unions was compulsory, but the then U.P. Government in 1969 decided to make the student union membership voluntary. This led to an upsurge of student agitations throughout U.P.

²The Banaras Hindu University, Varanasi being only Central University, the above ordinance was not promulgated here.

on the basis of total population of leaders and non-leaders.

The variables regarding personality, intelligence, expressed opinion traits of leadership and academic achievement were tested by calculating critical ratio. The allied variables and background factors associated with student leadership were tested on the basis of chi-square tests.

Conclusions

1. The study of differences in personality traits based on Cattell's 16 PF test indicated that the student leaders in comparison to the non-leaders were more warm and sociable, emotionally mature and stable, dominant having stronger character or super-ego strength, tended to be more adventurous, tough and realistic, practical, sophisticated and polished, confident and self-secure, radical, socially group dependant, higher in self-sentiment control, cheerful and self-composed. On the remaining three factors (B, F and L), they did not differ significantly although they had the tendency to be slightly more intelligent, surgent and adaptable. This generalization, except for minor variations, holds good for all the six universities regardless of level of education, age, income and residence variables as well as sample on the whole.

2. The analysis on intelligence variable based on Joshi's test indicated that the leaders and non-leaders both were more or less similar in their general mental ability. The result of this test substantiated the results on factor B (intelligence) of 16 PF test. It was observed that on the whole the leaders in comparison to the non-leaders were slightly higher in intelligence of factor B. This shows that the results of intelligence variable obtained on the basis of two tests in this research are in some contradiction with few other findings that leaders were more intelligent. One gets the feeling that had the leaders been distinctively more intelligent, there would have been lack of proper communication between the leaders and non-leaders.

3. The analysis of their expressed opinion towards 114 items of leadership traits based on LAI showed that the two groups differed significantly. The detailed analysis of their mean scores indicated that the non-leaders' rating was lower on the five-point scale of the LAI while the leaders' rating was decidedly higher. It shows that the leaders appear to have higher self-image while the non-leaders appear to disagree with the leader's self-rating.

The cluster analysis based on intercorrelations among eleven areas of leadership done in the process of standardization of LAI also indicated that in the first nine areas (e.g., intelligence and achievement, moral

sensitivity, imagination, restraint and imperturbability, drive and determination, responsibility, self-reliance, social responsiveness, easy maintenance of good relationship with others and status, and effectiveness, the effects of the constituent traits were observed to be positively related with student leadership while the traits of tenth area (i.e. dynamic physical characteristics) though related positively but only very slightly and those of the eleventh area (i.e. negative traits) were found to be negatively related with student leadership. These negative traits perhaps hamper the smooth functioning of leadership role in social situations.

4. The analysis on allied variables and other background factors revealed certain significant facts which are mentioned below.

(i) The five-fold analysis of academic performance illustrated the following facts :

- (a) The non-leaders in comparison to the leaders tend to show slightly better academic achievement in terms of mean percentage of aggregate marks. The only significant difference was found between leaders and non-leaders at .01 level.
- (b) The duration of their study showed that the non-leaders devoted more time towards their study and were observed to be more satisfied with the amount of time spent on it.
- (c) The percentage of obtaining first divisions among the non-leaders as compared to the leaders was higher and the percentage of securing third divisions was lower.
- (d) The gap in years in passing the various examinations (i.e. from high school to M.A./M.Sc. revealed that the non-leaders passed these examinations with fewer and shorter gaps.
- (e) The analysis of obtained attendance indicated that irregularity particularly among the leaders was higher both at undergraduate and postgraduate courses of education.

The above facts are indicative of a slightly lower academic performance on the part of leaders which may be assigned either to their habit of distributing their energies over varied academic and non-academic activities or to their carefree or less concerned attitude towards studies. It may also be that for non-leaders studies are major if not the only concern.

(ii) The analysis of socio-economic status based on family income and educational status suggested that the leaders in comparison to the non-leaders belonged to higher income groups and better educated families. This is further confirmed by the fact that the family economic pressure was not observed to be positively related with student leadership. Thus the absence of family economic pressure provides

leaders with more confidence and a carefree attitude thereby enabling them to fulfil their leadership role in academic surroundings.

(iii) The analysis of ordinal position showed that this variable has no significant relationship with student leadership.

(iv) The analysis on political consciousness indicated that the student leadership appears to be positively related with :

- (a) Direct political affiliation and membership in concerned political parties.
- (b) The intensity of participation in the activities of affiliated political parties.
- (c) Active membership in concerned student wings of various political youth organizations.
- (d) Leaders' participation in various occasional student movements.
- (e) Their readiness and frequency of going to jail for students' causes.
- (f) The desire to be future political leaders.
- (g) Occupational choices for political and legal professions.
- (h) Highest ambitions of life to become politician, social reformer or great man of the country to bring ultimate social change.
- (i) Leisure time pursuits : interest in reading socio-political books and magazines, liking for reading newspapers, gossip and talk.
- (j) Leaders' general preferences and their wider range of interest for past and present national and international political leaders.
- (k) Leaders' general awareness and full acquaintance, especially with left wing Indian political leadership.

The analysis on other background factors revealed the following facts :

- (a) Parents' occupation, caste groups, parents' approval of their sons/wards' participation in student leadership activities, higher age and longer stay in the university appear to be significantly related with student leadership.
- (b) Residence (rural and urban background) and marital status were not observed to be positively related with student leadership.
- (c) Social structure and economic inequality were observed to be the main causes of dissatisfaction for both the groups. This leads us to think that our youth in general are mostly dissatisfied with the socio-economic inequality; that this dissatisfaction is not confined only to leaders.

- (d) The analysis of major obstructions in the fulfilment of their life ambitions revealed that there was slight difference between leaders' and non-leaders' views, i.e. for leaders, social inequality was the first cause, unemployment second and government machinery third whereas for non-leaders, unemployment was the chief cause; social inequality and defective education system being the next major barriers in fulfilment of their life ambitions. □

Research Notes

Philosophical Considerations and Committee Work in the Curriculum

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NUMEROUS TEACHERS, principals, and supervisors, as well as college/university professors of education, strongly advocate that pupils in the school-class setting participate within the framework of committee endeavours in ongoing units of study. One can also perceive teaching and learning to occur largely on an individual basis. Two schools of thought in the philosophy of education may well have somewhat bipolar value systems pertaining to committee work in the school curriculum. The balance of this paper will explore experimentalism v. existentialism in terms of group compared to individual decisions made by learner.

Experimentalism and Committee Endeavours

Experimentalism, as a philosophy of education, strongly believes in pupils participating in indentifying and solving of life-like realistic problems. Rationale given for utilizing problem-solving activities in the school curriculum is that life itself in society consists continually in acknowledging and achieving solutions pertaining to relevant problems. In society, *group efforts* are necessary to develop viable solutions to problematic situations. Thus, pupils in the school curriculum need to become proficient, contributing members of group situations. The world of *experience* is the real world of experimentalists.

Experimentalists believe that knowledge, skills, and values are not absolutes but subject to change. In group endeavours in the school-

class setting, what is perceived as being vital in the problem-solving arena, is amenable to the *changing* rather than the *changeless*. Thus, problems identified, sources utilized to solve problems, hypotheses developed, conclusions realized, and members within a committee will not remain stable and static. Rather, a changing curriculum may well be in evidence. Continuous change exists in society and there is no exception to the concept of *change* in the school curriculum.

Experimentalists tend to deemphasize :

1. Teachers predetermining objectives, learning activities, and evaluation procedures for pupils.
2. Pupils working on learning activities and experiences on an individual basis with little or no opportunities for sharing of content in a cooperative setting.
3. Management systems of instruction with precise predetermined objectives for pupils to achieve individually or collectively.
4. Drill and practice in ongoing lessons and units of study.
5. The use of textbooks, workbooks, as well as the use of audio-visual materials whereby subject-matter is learned by pupils outside of problem-solving situations.

Existentialism and Committee Endeavours

Existentialists believe that *individuals* choose their own goals in the school curriculum as well as in the curriculum of life. These ends/objectives are not given to any one person but must be sought. Each person then must seek purpose in life. Decision-making skills are then highly relevant for each pupil to develop. These decisions/choices may result in desired or even undesirable outcomes, such as alienation. To be human, *each pupil* must choose, and not be an 'outerdirected' person. A pupil may permit others to make choices for the personal self; however, the involved learner then lacks commitment in the making of moral choices. Truth is subjective to the involved individual. Objective content does not exist. Existentialists emphasize, as much as possible, complete freedom for the learner to make moral choices. Dilemma situations are vital to emphasize in ongoing activities and experiences; thus, a pupil may notice that absurd situations are inherent in the making of moral decisions. A study of literature, religion, history, poetry, art, music, and drama, among other curriculum areas, assist pupils to notice, evaluate, and portray the human dilemma in the making of choices.

Existentialists tend to deemphasize :

1. Committee endeavours in the school curriculum and in the curriculum of life. The involved pupil loses his/her identity in committee work in the school/life curriculum.
2. Group decision-making processes or skills. If the pupil works on a committee, this must be a personal choice by the involved learner. Otherwise, ideally, complete freedom should be involved in having pupils make moral decisions involving commitment in an open-ended environment.
3. Objectives pertaining to the *group dynamics* concept. Pupils individually should be encouraged to choose and make choices rather than be positively functioning members within a group/committee endeavour. The concept *group dynamics* emphasizes the harmonious working together of several to achieve agreed upon objectives. Too frequently, conformity behaviour becomes a viable end result in *group dynamics*.

No doubt, a question frequently raised by existentialists pertaining to committee work is the following : Is each member a fully contributing individual, or do the more charismatic/influential human beings only, achieve self-realization ?

In Summary

Teachers, principals, and supervisors need to analyze concepts, and generalizations pertaining to the experimentalist/existentialist dichotomy relating to objectives involving pupil participation in committee endeavours. Ultimately, objectives need to be stressed which aid each pupil to achieve optimally in the school curriculum and in the curriculum of life.

References

- Ediger, Marlow. *The elementary curriculum ; A handbook*. Kir Kenville, Missouri : Simpson Publishing Company, 1977
- Jarolinek, John. *Social studies in elementary education*, Fifth edition. New York : The Macmillan Company, 1977
- Morris, Van Cleave, and Young Pai. *Philosophy and the American school*. Boston . Houghton-Mifflin Company, 1976



A Study of International Students Perceptions of Selected Factors from the Urban University Environment

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RECENTLY THERE has been large influx of international students enrolled in American universities from all over the world. Approximately, 2,50,000 students from more than 160 countries are enrolled in U.S. academic institutions in any given year.

These internationals bring their culture, attitudes, and beliefs from their own countries and enrich the U.S. campus environment by exchanging their ideas with American students. However, they also create new challenges for the administration, classroom instructors and community which require special academic programming and new facilities.

The full impact of the increased number of international students on American campuses and vice versa has not been ascertained. Not much has been known about international views of the university, and how well foreign students needs were being met. This study was undertaken as an attempt to describe international students perceptions of an urban university environment, and an attempt was made to make comparisons between international students perception and those of the total student body.

Introduction

Recently in discussing the rate of exchanges among the World Hemispheres, President Carter said: The challenges we face is to awaken

*This article is the modification of the paper presented to (i) Executives, (ii) Graduate Council, and (iii) College of Education Workshop at T.S.U. in October and November, 1971

¹President Carter *International Education and Cultural Exchange*, Vol. XIII, Fall 1977

our institutions to the changing world. Undoubtedly exchange activities make a vital contribution towards such an awakening.

The human component of the development process is a key to a better future, a principal target for sound, world development should be man himself. Exchanges of people whether in academics, professional, scientific, performing arts or other fields touch directly on the human development.

Among various executive agencies abroad as well as in our own Congress, there is a growing recognition that exchange programmes which bring people together are of key importance. U.S. Companies are discovering that if they are to prosper-indeed to survive in the developing countries, they must become true members of the community in which they operate. Accordingly the concept of cooperative good citizenship is gaining general acceptance, and U.S. companies are engaged in a variety of projects, including exchanges which go greatly beyond their traditional roles. Even volunteer participants by the housewives on the campus create warmth and adds the necessary human elements to the U.S. exchange programme.

Purpose of the Study

The purpose of the study was : (i) to seek the reason why international students selected TSU to further their education. (ii) to learn how do they perceive themselves in the American university environment, (iii) to obtain their evaluation of their classroom atmosphere and instruction, (iv) to discover their reaction to university policies, regulations, and services for international students, and (v) to find out if their needs are being met. The results may be useful to indicate the direction that the university should take in the education of international students in the future.

Methods

This study was done in May 1977 at Texas Southern University. The student body was predominantly black and 20 per cent student population was foreign to the U.S. The university is state-designated as a special purpose institution for urban programming.

The subject of this study were international students selected from six colleges on the TSU campus. The investigators² designed an international self-studies instrument with the advice of a Research

²Dr. Herman Boastick, Director of International Study Programme, Dr. Vyas, Dr. Frank Black, Director of Institutional Research, and Dr. James Maxey, Vice-President and Director of ACT.

Committee through the cooperation of the American College Testing (ACT) Programme, to evaluate the perception of international students of the college environment.

The data was analyzed by the ACT and the final report was prepared by the investigator in cooperation with ACT.

Results

TABLE 1
FACTORS THAT INFLUENCED ATTENDANCE AT TEXAS
SOUTHERN UNIVERSITY
Per cent who identified issue as

<i>Issue*</i>	<i>Major Consideration</i>	<i>Minor Consideration</i>	<i>No Importance</i>
Availability of desired educational programme (10)	70.4	18.4	11.2
Cost of attending (11)	70.0	18.0	12.0
Reputation of university (20)	60.6	17.2	22.2
Desirable climate of Houston (21)	53.0	28.0	19.0
Location of T.S.U. (9)	38.5	27.1	34.4
Friends attending T.S.U. (22)	24.5	29.6	45.9
To get work in Houston (14)	14.0	20.0	66.0

*The numbers in parentheses refer to the item number on the questionnaire

TABLE 2
PER CENT OF FOREIGN STUDENTS WHO AGREE WITH SELECTED
PRACTICES, PROGRAMMES AND FACILITIES AT TEXAS SOUTHERN
UNIVERSITY
Per cent who answered "true":

<i>Item*</i>	<i>For All Students</i>	<i>For Int'l Students</i>
Regulation for probation and dismissal known by most students (27, 54)	46.2	33.7
Examinations are usually through and fair (28, 55)	64.2	55.1
Students have adequate opportunity to participate in college policy-making (30, 57)	34.7	27.8
Regulations governing refund of tuition fees are known (35, 62)	33.0	35.2
Students are encouraged to criticize policies and practices (43, 70)	31.6	33.3
Counsellors available to assist students (36, 63)	64.2	56.7
Professors willing to help students (40, 67)	81.3	75.3

TABLE 3
EVALUATION OF UNIVERSITY SERVICES AT TEXAS SOUTHERN
BY INTERNATIONAL STUDENTS
 Per cent who responded :

<i>Service*</i>	<i>Valuable</i>	<i>Little Value</i>	<i>Never Used</i>	<i>Not Offered</i>
Academic advising (78)	73.0	10.4	10.4	6.3
Learning Resources Centre (84)	59.4	24.0	12.5	4.2
Student activities (86)	37.2	26.8	30.9	5.2
Job placement after graduation (85)	32.3	8.3	34.4	25.0

*The numbers in parentheses refer to the item numbers on the questionnaire

TABLE 4
EVALUATION OF INSTRUCTORS AT TEXAS SOUTHERN
BY INTERNATIONAL STUDENTS
 Per cent who responded :

<i>Characteristic*</i>	<i>Most of My Instructors</i>	<i>About Half of My Instructors</i>	<i>Few of My Instructors</i>
Given foreign students adequate opportunity to participate in discussion, to ask questions, and to express points of view (87)	51.5	21.6	26.8
Do not organize their classroom materials well (94)	13.7	18.9	67.4
Do not seem to care whether or not class material is understood (96)	20.4	15.1	64.5
Relate course material to current problems (99)	32.6	26.3	41.1
Provide opportunities for practical application of ideas presented in class (101)	27.8	25.8	46.4

*The numbers in parentheses refer to the item numbers on the questionnaire

A total of 101 students responded to the survey, with 84 per cent of the students from Africa, 11 per cent from Asia, 2 per cent from Europe, and 1 per cent from South America. Most of the students (83 per cent) had been in the United States between one and three years. Only 13 per cent had been in the United States less than one year. It is interesting that 84 per cent had transferred because of weather as well as low tuition fees compared to North or other places in the U.S.A. or they might have friends of their own country on this campus, which

was indicated by few international students from our campus, even though the questionnaire does not reveal in top six categories for different colleges.

Table 1

The result also indicated that the most important factors that influenced the students at TSU was : (i) Availability of desired educational programme (70 per cent), (ii) Cost of attending TSU (70 per cent), (iii) Reputation of the university (60 per cent). The reason for listing desired education programme was that university has unique African studies programme on the campus which attracts African students, not only that but officials at TSU have established an exchange faculty programme, peace-core and teacher-core programme with some of the African countries which also bring reputation to TSU from international students.

However, it is significant to note that the location of TSU, the climate, friends attending TSU and work opportunities, was not considered to be among the top six most influential factors.

Table 2

The international students also find that even though there is an adequate counselling and faculty assistance are available, such assistance is not available for them.

In general, they also perceive more difficulty with study materials, examinations, and grading practices than the overall student body at TSU. The reason may be that international students have different experience backgrounds, language difficulties, and different grading systems at home.

The international students did perceive many practices, such as probation, college policy-making, and refund of tuition and fees unfavourably. This dissatisfaction may be due to the fact that most of the internationals are transfer students, and they may not have had sufficient opportunity to be informed about the life of the campus.

Table 3

The results also indicate that international students perceived the academic advising service (73 per cent), and learning resources centre (59.4 per cent) more favourable. The reason may be that most of the international students when they come to the U.S.A. may have definite

academic goals, so they view academic advising service favourably. Secondly, since the English language is the great barrier for understanding they might find the learning resources centre useful. In addition under-developed countries have little audio-visual aid, which we find in the U.S.A., which gives them acceleration in their studies from learning resource centres.

However, they perceived student activities (32.2 per cent) and job placement (32.2 per cent) services less favourably. The reason may be that international students have academic responsibility at home which deters them from campus activities. Secondly, most of the internationals are having student visa, and they may not be allowed to do jobs, therefore, they view the job placement service less favourably.

Table 4

Regarding their instructors they view favourably their instructors' performance and their attitude towards them. However, they view less favourably the items on the organization and content of their course work (13 per cent). They also felt that their course work is less applicable and less relevant to their culture (27 per cent). It is quite obvious that these internationals are coming from different culture, different environment (physical as well as social). They have different experience background which add difficulties to relate their classwork.

In conclusion, international students should be scaled according to their culture and experience background. Instructors should be more sensitive to their difficulties because of the language and different examination system at their home country. Administrators and non-American student advisors should provide better information, regarding college policies and practices in advance as well as explaining other matters such as registration procedures, getting fees back, etc. during orientation programme. School officials also should design a special extensive language programme from all levels in order to cover language barrier

□

A Study into the Effect of Impulsiveness and Controlledness over the Academic Achievement

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THE STRENGTH of the personality structure of which it is a part determines the value of any degree of control. Usually it is found that highly controlled people are unimaginative. They are too tightly bound to the immediate situation and the old situation. The impulsive, though more flighty, tend to be more flexible and imaginative.

Plath (1959) showed that smoking is consistently related to impulsivity. Similarly the difference in the impulsivity of college drinkers and non-drinkers was established by Kukuk (1960) who showed that more the impulsiveness, more the habit of drinking. However no studies appear to have attracted the attention of research workers in relation with the impulsiveness or controlledness and academic achievement.

Impulsiveness and Controlledness

Cattell (1965) described the qualities of those who possess high super-ego strength as follows :

It is obviously not just a rational politeness or conformity but a somewhat fierce 'categorically imperative' (to use Kant's description) of the kind exemplified at its strongest by the Biblical saints. It is not wholly responsible for determining persistence and perseveration since these may arise also in the service of personal ambition. But it has much to do with persistence in super-personal goals and ideals, and with attempt to exercise powerful self-control. It measures low in socio-paths (persons psychopathically addicted to crime) and high in face-to-face group elected leaders, probably because (as pupils show) fairmindedness in leaders, is one of the prime demands of followers.

In brief, it may be mentioned that the impulsive respond quickly and without reflection even in serious situations, frequently break rules and often lose control of themselves. The controlled, on the other hand, set difficult goals for themselves, make careful plans to achieve them organize their activities to fit their plans, and exercise a firm check over both their feelings and their behaviour. Further, the controlled seem to have the advantage: They are more ambitious, they plan their time more sensibly, they do better in school, they are more socially responsible, they are less often drunkards and criminals, and they have fewer accidents. Controlled are more ambitious than the impulsive. But their ambitiousness is often not as personally satisfying as many think. The grimness of the lot of the controlled becomes especially apparent when their aspirations are unrealistically high.

The Problem

Taking it for granted that students are impulsive or controlled, it was set to probe into their academic achievements. However, academic achievement is affected by different factors of which the personality factors are the least worked out by investigators.

The rigidity with which the personality factors, especially the super-ego strength, control the behaviour of an individual, determines his achievement in many of the fields for which the individual is subjected. This rigidity may be in turn treated as the impulsiveness or controlledness of an individual and for the present purpose the same is considered as valid.

However, it appears that no one has studied the relationship between the academic achievement and impulsiveness or controlledness of an individual. Hence the present investigation was preferred, and the problem under study was preferred to be worded as: A study into the effect of impulsiveness and controlledness over academic achievement of school-going children.

Hypothesis

Basing over the common and general expectations the following hypothesis was framed:

The controlled will perform better and have more achievement in academic areas than the impulsive students.

Selection of the Tool

Impulsiveness was measured by non-inventory methods by few workers in the area. Preference for colour over form is one such method used by few investigators. Students performed tasks that involved sorting a circular red object into a circular blue box or a square red box. Those who consistently sorted by colour rather than by shape showed much evidence of impulsiveness; they were faster in their task, and they more often described themselves as impulsive (Murray 1964).

The impulsiveness of the children has also been measured by rating their speed of response and errors in a visual sorting task (Kagan 1966). Those classified as impulsive by this method made more errors in reading. Meade (1966) experimentally showed that the controlled see time as valuable commodity that should not be wasted whereas the impulsive put less value upon time and are less concerned about wasting it.

Amongst all the above the scale presented by Smith (1968) was preferred for the present purpose, due to the following reasons :

1. Its easy administrability in terms of time and scoring
2. Its generalizing value—equal scores for both men and women thus avoiding or nullifying the effect of sex.

Smith (1968) presented the inventory (See Appendix) with a clarification that men and women have about the same range of scores even though their responses for individual statements may differ markedly. The inventory obtains answers from extremely impulsive as 'true' for the first 20 statements and 'false' for the rest of the 20 statements. The answers of the extremely controlled are the reverse. The norms (Table 1) was used for grouping the individuals.

TABLE 1
THE NORMS FOR THE IMPULSIVE-CONTROLLED SCALE

	<i>Impulsive</i>				Percentile								<i>Controlled</i>			
	0	10	20	30	40	50	60	70	80	90	100					
Men	6	11	13	15	17	18	20	22	25	28	32					
Women	6	12	14	16	18	19	21	23	35	37	34					

For the present study it was planned to constitute three groups by considering the scores on inventory. The details are as follows :

Up to 30th percentile on the scale—Impulsive

40th, 50th and 60th percentiles—Normals

From 70th and above up to 100—Controlled

Details of the Tool

The internal consistency of the scale was established by the constructors of the test. In order to establish this aspect, the statements for which approximately the same number chose the 'true' as the 'false' answer were assumed to be neutral. Statements on which the vast majority of students chose the answer as the most desirable one were either discarded or revised. The acquiescence (tendency of some to answer 'true' to questions, while others have an equally strong tendency to answer 'false') was avoided by selecting the statements for the scale in such a way so that the lowest and highest scores could only be obtained by answering 20 of the statements 'true' and 20 of the statements 'false'. The procedure gives the extremely acquiescent or non-acquiescent person an average score rather than an extreme one.

Reliability

Repeat reliability was established by the test constructors. The students completing the same scale second time two months later tended to achieve the same score. The coefficient of correlation between the first and second administration of the same test was reported to be 0.80 which is sufficiently dependable.

Validity

For validating the scale, the author reports that he asked for volunteers to be interviewed by him on a stage. He then established about the fitness of the actual behaviour to the score obtained by individuals. Basing over the information the statements were reorganized.

Selection of the Sample

For the present study only high school children were preferred and through random sampling 500 students were grouped from 20 different schools. All the students were selected from Class VIII. These students have all successfully got through Class VII common examination conducted by the DEO of twin cities of Hyderabad and Secunderabad.

Since all the individuals come from the twin cities and are studying in the Mission Schools (Convents), no separate socio-economic study was made. However, it was found that almost all the individuals (sample) hail from educated families. Their economic status ranged from Rs. 500 to 1,000 in all the cases. In view of the common examination no separate intelligence test was administered.

Collection of Data

The sample selected was administered the impulsive and controlled scale. The scores of individuals over the scale were found out. All those boys who obtained scores between 6 and 15 were grouped as impulsive, between 17 and 20 as normals and between 22 and 32 as controlled. Similarly for girls the impulsives were grouped between 6 to 16, 18 to 21 as normals and from 23 to 34 as controlled (see Table 1).

Even though the authors of the impulsive-controlled scale state that the sex difference does not have significant change in the scores obtained over the scale, the present writer was tempted to find the effect of impulsiveness or controlledness over the academic achievement for both sexes separately.

Analysis

Out of the 500 individuals to whom the impulsive-controlled scale was administered, only 471 have returned the scales duly completed as per the instructions given to them. Nineteen boys and 10 girls were unable to work properly with the scales given to them. The remaining (approved ones) were scored and then groups were formed as per the details shown in Table 2.

TABLE 2
DETAILS OF THE GROUPS OF STUDENTS FORMED SEX-WISE ON
THE BASIS OF THE SCALE ADMINISTERED

S. No.	Group	No. of Students	Scores Range Obtained on the I-C Scale				Percentile Range	Remarks
			BOYS	GIRLS	BOYS	GIRLS		
1.	Impulsive	79	78	6—15	6—16	0—30	as per details given in Table 1	
2.	Normal	76	78	17—20	18—21	40—60		
3.	Controlled	83	77	22—32	23—34	70—100		
Total :		238	233	(Total for both Boys and Girls = 471)				

After tabulating it was felt preferable to round up the groups to a standard number and thus a group of 75 individuals was preferred in each area for both the sexes. Thus a group of 225 boys and 225 girls were finalized for further study, from the 238 group of boys and 233 group of girls shown in Table 2.

In all 75 impulsive, 75 normal and 75 controlled type of students from boys and the same number of pupils from girls were selected for the present study. The academic achievements of all these pupils were

noted. However, it was preferred to take into consideration only the divisions which they obtained in the common examination, i.e. Class VII (which they have passed).

Students securing 60 per cent and above are treated as first class, between 50 and 59 per cent second class and from 30 to 49 per cent as third class. The details are shown in Table 3.

TABLE 3
THE ACADEMIC ACHIEVEMENT OF INDIVIDUALS BELONGING TO
DIFFERENT GROUPS

S. No.	Group to which They Belong	Number of Individuals					
		I Division		II Division		III Division	
		BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
1.	Impulsive	20	25	25	28	30	22
2.	Normal	30	36	26	24	19	15
3.	Controlled	40	44	25	16	10	15

From Table 3 it is evident that students belonging to different groups have different levels of academic achievements both in boys' group and girls' group. Further there appears some closeness in the academic levels of individuals (boys and girls) belonging to the same group. For example, in normal group 26 boys obtained second division. In the same group 24 girls obtained second division. However, this closeness varied considerably for other divisions and groups.

Therefore, it was preferred to proceed the analysis of the data in two steps. The first one is concerned with the verification of the significance of the differences existing in the academic levels of individuals belonging to different groups—within the same sex. The second step is to verify the sex differences in academic levels within the same group and same academic levels.

To verify the first step the chi-square computation was preferred. The value was calculated by using the formula given by Garrett (1973) which reads as follows :

$$\text{Chi-square} = \sum \left\{ \frac{(f_o - f_e)^2}{f_e} \right\}$$

The first one done is the computation of chi-square value for the boys' group.

TABLE 4
ACADEMIC ACHIEVEMENT OF BOYS BELONGING TO
DIFFERENT GROUPS (USED FOR CHI-SQUARE COMPUTATION)

<i>S</i> <i>No.</i>	<i>Name of the Group to</i> <i>which They Belong</i>	<i>No. of Boys in Different Divisions</i>			<i>Total</i>
		<i>I</i> <i>Class</i>	<i>II</i> <i>Class</i>	<i>III</i> <i>Class</i>	
1.	Impulsive	20*(30)	25 (25.3)	30 (19.7)	75
2.	Normal	30 (30)	26 (25.3)	19 (19.7)	75
3.	Controlled	40 (30)	25 (25.3)	10 (19.7)	75
	Total	90	76	59	225

*Values given in the brackets are calculated on the basis of equal probability. The procedure adopted is as follows :

For obtaining the equal probability values for impulsive students the totals vertically and horizontally were multiplied and the product is divided by the general total. To demonstrate for the impulsiveness in first class the probable (on the basis of equality) score is $90 \times 75 / 225$. Similarly for the second class the score is $76 \times 75 / 225$. In the same manner all other values are obtained and reported, in the brackets above.

Computation of Chi-square Value

By applying the formula (Garett 1973) the differences in the expected and observed values were first found and squared and then they were divided by the expected value of that particular cell $(f_o - f_e)^2 / f_e$ was computed for all the cells. The values obtained are

- I. 1. $(30 - 20)^2 / 30 = 3.33$; 2. $(25.3 - 25)^2 / 25.0 = 0.04$,
 3. $(19.7 - 30)^2 / 19.7 = 5.38$.
 II. 1. $(30 - 30)^2 / 30 = 0$; 2. $(25.3 - 25)^2 / 25.3 = 0.02$;
 3. $(19.7 - 19.0)^2 / 19.7 = .03$.
 III. 1. $(30 - 40)^2 / 30 = 3.33$; 2. $(25.3 - 25.0)^2 / 25.3 = .04$;
 3. $(19.7 - 10)^2 / 19.7 = 4.78$.

The chi-square value was established by adding the above values .

$$3.33 + .04 + 5.38 + 0 + .02 + .03 + 3.33 + .03 + 4.78 = 18.95.$$

At 4 degrees freedom ($r-1 \times c-1 = 2 \times 2 = 4$) the chi-square value is significant at 1 per cent level if it is or exceeds 132.77 (as per the table given by Garrett 1973). Hence it may be safely concluded that the differences observed in academic achievement by different groups are real and not due to experimental errors, as far as boys' groups are concerned.

Similarly, the chi-square value is computed for the girls group for verification of the significance of differences. The details are given in Table 5.

TABLE 5
ACADEMIC ACHIEVEMENT OF GIRLS BELONGING TO DIFFERENT GROUPS (USED FOR CHI-SQUARE COMPUTATION)

S.No.	Name of Group to Which They Belong	No. of Girls in Different Divisions			Total
		I Class	II Class	III Class	
1.	Impulsive	25 (35.0)	28 (22.7)	22 (17.3)	75
2.	Normal	36 (35.0)	24 (22.7)	15 (17.3)	75
3.	Controlled	44 (35.0)	16 (22.7)	15 (17.3)	75
	Total	105	68	52	225

On equal probability basis the values are calculated as in the case of boys and are shown in the parentheses.

By applying the formula mentioned earlier the values were calculated as follows :

- I. 1. $(35-25)^2 / 35 = 0.29$; 2. $(22.7-28)^2 / 22.7 = 1.24$;
3. $(17.3-22)^2 / 17.3 = 22.09/17.3 = 1.28$.
II. 1. $(35-36)^2 / 35 = .03$; 2. $(22.7-24)^2 / 22.7 = 0.07$;
3. $(17.3-15)^2 / 17.3 = .30$.
III. 1. $(35-44)^2 / 35 = 2.31$, 2. $(22.7-16)^2 / 22.7 = 1.98$;
3. $(17.3-15)^2 / 17.3 = 0.30$

The chi-square value was obtained by adding the above values .

$$0.29 + 1.24 + 1.28 + 0.03 + 0.07 + 0.30 + 2.31 + 1.98 + 0.30 = 7.80.$$

At 4 degrees freedom this value was found to be insignificant at the approved levels of significance. This value gives scope for placing confidence of the true difference in academic achievements of girls, only at 10 per cent levels and not at the approved level of 1 per cent or even 5 per cent level. Hence it is concluded that the difference in achievements of girls belonging to different groups are accidental and not due to the variable (group to which they belong) under study.

The first aspect, the analysis has revealed, is that the impulsive boys did not fare well in the academic achievements in terms of first class but normal and controlled groups of boys did well in obtaining a first division. This was further confirmed by observing Table 4, where it could readily be seen that impulsive group (in boys) obtained more students in

third division whereas the other two groups had less number in third division area, when compared to second and first classes of achievement

However, the above aspect did not exist in case of girls and no specific conclusions were drawn in view of the insignificant (at the approved levels) chi-square value obtained.

The second step in analysis of the data was to find the sex differences in academic levels within the same group and same academic level. The following procedure was adopted for obtaining valid results.

Group-wise academic levels are reported both for boys and girls at the first instance in Table 6.

TABLE 6
ACADEMIC ACHIEVEMENTS OF BOYS AND GIRLS BELONGING TO
IMPULSIVE GROUPS

S. No.	Academic Levels	Boys	Girls
1.	I Division	20	25
2.	II Division	25	28
3	III Division	30	22

For the sake of comparison between the achievements, the means of scores for boys and girls along with the standard deviations were found out. In order to establish the significance of the difference between boys and girls, the critical ratio between the mean differences was computed.

TABLE 7
DETAILS ABOUT THE TESTING OF SIGNIFICANCE FOR IMPULSIVE
GROUP IN TERMS OF ACHIEVEMENTS OF BOYS AND GIRLS

S. No.	Division	No. of Boys	Mean of Marks Obtained	S.D.	No of Girls	Mean of Marks Obtained	S.D.	S.E. of Difference	Difference of Means	Critical Ratio
1.	1st	20	66.5	8.6	25	68.5	8.0	2.5	-2.0	.08
2.	2nd	25	58.4	12.8	28	57.5	14.5	3.75	0.9	.24
3.	3rd	30	43.8	15.0	22	46.0	18.4	4.78	-2.2	-.46

Standard error of the difference between the two means (mean scores of the achievements of boys and girls) was computed from the formula given by Garrett (1973). The formula used is .

$$\text{S. E. of Difference } \sigma_D = \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}$$

Critical ratio was calculated by dividing the difference of means with the S.E. of difference,

$$C.R. = \frac{D}{\sigma D}$$

It is evident that none of the critical ratio values reach the accepted levels for entrusting confidence in the difference of academic achievement of boys and girls. None of the values have reached either 2.58 or even 1.96 values which speak about the confidence at 5 per cent and 1 per cent levels. Hence it was concluded that practically there is no difference in the achievements of boys and girls belonging to the impulsive group.

Similarly for the other groups the critical ratios were calculated and the results are reported in the following paragraphs.

TABLE 8
ACADEMIC ACHIEVEMENTS OF BOYS AND GIRLS BELONGING
TO NORMAL GROUP

S. No.	Academic Levels	Boys	Girls
1.	I Division	30	36
2.	II Division	26	24
3	III Division	19	15

As was done in the previous case, for the normal group also the critical ratios were computed.

TABLE 9
DETAILS ABOUT THE CRITICAL RATIOS COMPUTED FOR TESTING
THE SIGNIFICANCE OF DIFFERENCE IN ACADEMIC ACHIEVEMENT
OF BOYS AND GIRLS BELONGING TO NORMAL GROUP

S. No.	Division	No. of Boys	Mean of Marks Obtained	S.D.	No. of Girls	Mean of Marks Obtained	S.D.	S.E. of Difference	Diff- erence of Means	C.R.
1.	1st	30	65.0	10.4	25	68.0	12.6	3.15	-3.0	0.95
2.	2nd	26	57.0	14.5	28	56.5	15.5	4.08	0.5	0.12
3.	3rd	19	46.5	15.0	22	44.6	16.0	4.84	1.9	0.39

It could be seen from Table 8 that none of the critical ratios computed are nearing the limits of 1.96 or 2.58. Hence it is concluded that the differences existing in the achievements of boys and girls belonging to the normal group are just accidental and no true difference is existing.

For testing the significance of the difference in achievements between

boys and girls belonging to controlled group, once again the critical ratios were computed as explained earlier.

TABLE 10

DETAILS OF THE CRITICAL RATIOS COMPUTED FOR TESTING THE SIGNIFICANCE OF DIFFERENCE IN ACADEMIC ACHIEVEMENT OF BOYS AND GIRLS BELONGING TO CONTROLLED GROUP

<i>S No.</i>	<i>Division</i>	<i>No of Boys</i>	<i>Mean of marks obtained</i>	<i>S.D</i>	<i>No. of Girls</i>	<i>Mean of marks obtained</i>	<i>S D</i>	<i>S E of difference of Means</i>	<i>Critical Ratio</i>
1.	1st	40	63.5	8.5	44	64.0	12.0	2.25	-0.5 -0.22
2.	2nd	25	54.0	14.8	16	52.8	16.5	5.08	1.2 0.24
3.	3rd	10	41.6	16.4	15	42.5	18.0	6.96	-0.9 -0.13

In view of the low critical ratios obtained, once again it may be concluded that there is no difference between the achievements of boys and girls belonging to controlled group

Conclusions

1. Boys exhibited a definite effect of impulsiveness or controlledness over their academic achievements. Impulsive students (boys) obtained less number of first classes when compared to the controlled students. However the normal group was in between the two extremities of impulsive-control continuum. However, both the groups obtained the same number of second classes (25 each) with only one student extra for the middle group (normal—the number is 26).

However, the impulsive boys are poor in their academic performance was reiterated by the fact that they obtained the maximum number (30) of third divisions when compared with the other two groups where the third divisioners were 19 for normal and 10 only for the controlled group. Thus it may be concluded that students are negatively effected by the impulsiveness with regards to the academic achievements. Controlled students gave substantial evidence of better academic performance. Hence the hypothesis framed has been proved to be valid and thus retained for predicting the performance of boys.

2. Girls also exhibited a similar behaviour (i.e. impulsive achieving less and controlled scoring more) with respect to academic achievement. However, no statistical validation could be established. Hence it is concluded that even though the hypothesis framed holds good for the group of girls, it may not be substantially laid down affirmatively for want of

statistical confirmation.

3. Individually when the performance of boys and girls belonging to different groups on impulsive-control continuum were compared, no substantial relationship existed. The critical ratios computed in this connection failed to reach the accepted limits which enables us to retain confidence in the differences of performances of boys and girls. Hence it was concluded that within the groups, i.e. impulsive, normal and controlled, no sex differences could be established with respect to the academic achievements, i.e. impulsiveness or controlledness effect both sexes equally with regards to academic achievement.

However, some suggestions for similar studies were thought to be reasonable for mentioning in view of the important concept, i.e. under study.

Academic achievement is affected by many factors. Impulsiveness, controlledness, etc. are all such factors. Apart from these different factors such as the socio-economic status of the teacher and taught, teacher-effectiveness, etc. are a few out of them. Hence it is suggested to study the effect of (i) socio-economic status v. academic achievement, (ii) teacher-effectiveness v. academic achievement, and (iii) need fulfilment v. academic achievement at all levels, i.e. primary, secondary and tertiary stages of education.

References

- Cattell, R.B. *The scientific analysis of personality*. Baltimore : Penguin, 1965
- Garett, Henry. *Statistics in psychology and education*. Vakils, Fesser and Simons Pvt. Ltd., Bombay, 253, 1973
- Kagan, J. Reflection impulsivity : The generality and dynamics of conceptual tempo. *J. Abnorm. Soc. Psychol.*, 71, 17-24, 1966
- Kukuk, W. Traits of college drinkers Master's thesis, Michigan State University, 1960
- Mendo, R.D Achievement motivation, achievement and psychological time. *J. Pers. and Soc. Psychol.*, 4, 577-580, 1966
- Murray, J. L. and Jackson, D. N. Impulsivity and colour-form abstraction. *Journal of Consult. Psychol.*, 28, 518-522, 1964
- Plath, D.W. Physique and personality differences between male college cigarette smokers and non-smokers Michigan State University, 1959
- Smith, Henry Clay. *Personality Development*. McGraw-Hill Book Co., N.Y., 197, 1968

Appendix

THE IMPULSIVE v. CONTROLLED SCALE

Directions

If you think a statement is 'true' or more true than false as far as you are concerned, circle 'T'. If you think a statement is 'false' or more false than true as far as you are concerned, circle 'F'.

- T F 1. I find it rather hard to keep to a rigid routine
 T F 2. I like to be with people who don't take life too seriously.
 T F 3. I am not particularly methodical in my daily life,
 T F 4. I generally go from one thing to another in my daily life with a great deal of planning
 T F 5. Most of my spare money is used for pleasure.
 T F 6. I occasionally neglect serious things in order to have a good time.
 T F 7. I find it difficult to keep my mind on one detail for very long.
 T F 8. I'm occasionally disorganized if I am called on suddenly to make a few remarks.
 T F 9. I feel that friendship is more important in life than anything else
 T F 10. I find that my minor likes and dislikes change rather frequently.
 T F 11. I frequently obey whatever impulse is the strongest
 T F 12. I believe in getting as much fun as I can out of life.
 T F 13. I believe that I have the disposition of a pleasure-seeker
 T F 14. I would rather see a musical comedy than a documentary film.
 T F 15. I like to be with people who are not preoccupied with the future
 T F 16. I am greatly influenced in minor decisions by how I happened to be feeling at the moment.
 T F 17. I am much more interested in activities that I can enjoy for their own sake than in activities that are of long-range benefit.
 T F 18. I accept my feelings as the best guide for my actions.
 T F 19. I have some difficulty in concentrating my thoughts on one thing for a time.
 T F 20. I generally seek whatever makes me happy here and now.
 T F 21. I like to make a very careful plan before starting in to do anything
 T F 22. I am guided in all my conduct by firm principles.
 T F 23. Whenever I have to undertake a job I make out a careful plan of procedure.
 T F 24. I never lose my head
 T F 25. I set very difficult goals for myself
 T F 26. I like to keep all my letters and other papers neatly arranged and filed.
 T F 27. I always keep control of myself in an emergency situation.
 T F 28. I am extremely systematic in caring for my personal property.
 T F 29. I always finish one task before taking on others
 T F 30. I like to have my life so arranged that it runs smoothly and without much change in plans.
 T F 31. I can always do a good job even when I am excited.
 T F 32. I am extremely ambitious.
 T F 33. I enjoy work more than play.
 T F 34. I really don't like to drink alcoholic beverages.
 T F 35. I am considered extremely 'steady' by my friends

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- T F 36. I like to have my meals organized and a definite time set aside for eating.
- T F 37. I keep my workplace very neat and orderly.
- T F 38. I spend a good deal of time thinking about my plans for the future.
- T F 39. I live more for the future than for the present.
- T F 40. I believe that what a person does about a thing is more important than what he feels about it.

Achievement Motive in Low and High Achievers · A Comparative Study

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PREVIOUS STUDIES (Attkins in 1956, Mitchell 1961, Myers 1964, Mehta 1967, 1969, Sinha 1970, Chandrakala 1972 and Guanani 1973) have found positive relationship between n-achievement and scholastic achievement, on the other hand, Sinha (1970) and Bhatnagar (1969) have reported negative relationship between the two variables. The present study was undertaken to find out the extent to which low average and high achievers differ in respect of their n-achievement and also to explore the nature and extent of relationship between n-achievement and scholastic achievement

Hypothesis

In this study the following hypothesis was tested .

The low and high achievers do not differ significantly in respect of their n-achievement.

Sample

The sample of this study consisted of 300 high school male students of science-biology group selected from the 12 higher secondary schools of Agra city. The groups were divided on the basis of marks obtained by the students in their Class X examination of U.P. Board, Allahabad. Those who got 60 per cent and above were considered high achievers, those who had failed and secured below 40 per cent were named low achievers whereas students getting within the range of 45 per cent and 55 per cent were average achievers. The average group had been introduced in the design of the study to serve as the reference group.

Test Materials

N-Achievement

In this study n-achievement was measured by the TAT test prepared by

Mehta (1969). It is a set of six pictures given to respondents following the procedure described by McClelland, *et al.* (1953). In this method the students were asked to write stories in response to the pictures shown. The scoring was done using the scoring system C developed by McClelland, *et al.* (1953).

Socio-Economic Status

Socio-economic status was determined by Kuppuswamy's (1962) socio-economic status scale (urban).

Scholastic Achievement

Total marks obtained by the students in their high school examination of U. P. Board were taken as measure of their scholastic achievement.

Procedure

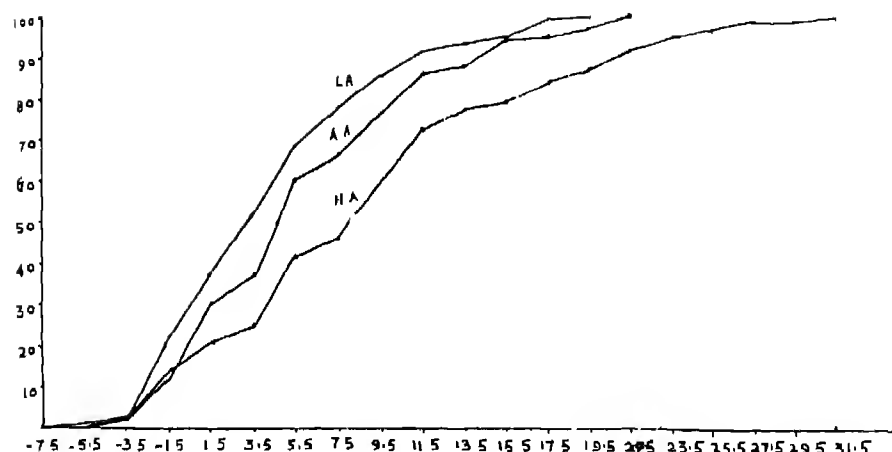
The first task was to select three groups of high, average and low achievers. For this a list of higher secondary schools of Agra was prepared. These schools were divided into three categories of good, average and poor on the basis of their past reputation about their high school results. These higher secondary schools provided a sample of 1,000 students of Class X offering science-biology group. Out of these students, 265 were considered high achievers, 340 average achievers and 395 as low achievers. After matching the groups with respect to their sex the final sample of three groups of one hundred each was selected. After selecting the groups, the tests were administered in natural classroom situation and marks were obtained from the office record.

Results and Discussion

From the graph as well as from Table 1 it is clear that pretty good number of students have negative n-ach. It is also seen that ogive for high achievers lies to the extreme right of the three showing that they have higher n-ach. than the average and low achievers.

Similarly, the ogive for the average achievers is to be the right of that for the low achievers. It means that the average achievers have higher n-ach. than the low achievers. The three ogives clearly suggest that n-ach. is positively related to achievement. A very interesting finding of the graphs and cumulative frequency table is that a pretty good number of students have negative n-ach.

Negative n-ach. may be interpreted as state of satisfaction with the present state of affairs and absence of need for achievement. Such



Ogives of the n-ach. scores

TABLE 1
CF OF N-ACHIEVEMENT SCORES OF THE THREE GROUPS

High Achievers		Average Achievers		Low Achievers		
C.I.	F	C.F	F	C.F.	F	C.F
30-31	1	100	—	—	—	—
28-29	0	99	—	—	—	—
26-27	2	99	—	—	—	—
24-25	2	97	—	—	—	—
22-23	3	95	—	—	—	—
20-21	5	92	3	100	—	—
18-19	3	87	2	97	1	100
16-17	5	84	1	95	4	99
14-15	2	79	6	94	2	95
12-13	5	77	2	88	2	93
10-11	12	72	10	76	12	85
8-9	14	60	10	76	12	85
6-7	5	46	6	66	5	73
4-5	16	41	23	60	17	68
2-3	4	25	7	37	14	51
0-1	7	21	18	30	15	37
-2-1	11	14	10	12	21	22
-4-3	3	3	2	2	0	1
-6-5	—	—	—	—	1	1

personality characteristic appears to be a characteristic of the Indian culture, where, at one time people heavily depended upon providence and resigned from all efforts to achieve higher success, perhaps these causes with negative n-ach. scores are reminiscent of that philosophy of life.

It is also remarkable that 23 per cent low achievers against 17 per cent high, have negative n-ach. This fact shows that low achievers are more susceptible than high achievers, to that attitude of mind where the satisfaction with the present state of affairs is considered desirable.

The negative n-ach. may also be explained in terms of reference theory of behaviour. It is probable that these students compare themselves with such students who are much lower than themselves, in their achievements, and do not feel the need of higher achievement. It is perhaps for this reason that some students have negative n-achievement. It is also probable that this low frame of reference is obtaining to a greater extent among the low achievers than the high achievers, because low achievers generally move in the company of low achievers. This state of affairs keep them unaware of the higher need for achievement. Hence greater incidence of negative n-achievement among the low achievers.

TABLE 2
MEAN, SD, T AND P FOR N-ACHIEVEMENT FOR
THE THREE SCORES

<i>N</i>	100	100	100
<i>M</i>	8.72	5.58	4.13
<i>σ</i>	8.6	6.18	5.28
<i>σm</i>	.86	.618	.528

<i>S N.</i>	<i>Groups</i>	<i>t</i>	<i>df</i>	<i>P</i>
1.	High Ave.	2.9	198	< .01
2.	High-Low	4.59	198	< .01
3.	Ave. Low	1.8	198	< .10

From Table 2 it is clear that the high achievers have higher n-ach. than those of average and low achievers. The difference between the means of high-average and also between high and low achievers is significant at .01 level and that between average and low achievers at .10 level. These findings clearly indicate that high achievers have higher n-achievement than low achievers. Here two questions arise :

1. Why have high achievers higher n-achievement ?
2. Why have low achievers lower n-achievement ?

According to Mehta (1970), "Achievement motivation is a feeling of dissatisfaction with the present state of affairs and an urge to improve the life conditions for oneself". It may be associated with variety of goals,

l the behaviour will involve activities which are directed al, that is, attainment of some standard of excellence. It competition with others in which they are surpassed. But hand, the individual may be chiefly concerned to set for h standard of performance and to reach this through his vercoming any obstacles to his success. Behind these goal- ties two types of forces are active (a) motive to achieve) motive to avoid failure

nswer to the first question, firstly, it appears that high better confidence in their abilities. Their success stimulates eve higher level of success, and they set up higher goals. -setting behaviour arouses higher need-achievement among ly, it is probable that high achievers have low level of helps in their achievement. This low anxiety may be one of ponsible for higher n-achievement in them.

e to the second question it is probable that lack of satisfac- nt, higher level of anxiety, low level of goal-setting, lower abilities, lack of confidence and feeling of insecurity due to nent would have developed in low achievers inferiority use of this they will only try to avoid failure. They lack in pirit, and do not want to take risk of further failure. Thus der of excellence and long-term involvement for higher probably has got no significant meaning for them and they el of n-achievement.

question arises, whether achievement leads to n-achievement ent leads to achievement, perhaps both are correct because ment creates confidence for having greater efforts for higher results in higher n-achievement. This higher n-achievement ividual goal-conscious, active and energetic to achieve r. This chain of reactions goes on in which achievement gher n-achievement and n-achievement helps in higher

Correlation between Achievement and n-Achievement

ssion of the results given so far clearly indicates that there is ionship between the students achievement and n-achievement e nature of relationship. But for finding out the strength of between the two variables, product moment coefficient of as calculated. The results are presented below.

icient of correlation between achievement and n-achievement

was found to be .37 which is significant at .01 level for df. 48, r^2 is 13.69. It means 13.69 per cent of the total variance of achievement score is accountable by n-achievement. This contribution of n-achievement to the variance in achievement is fairly high.

For understanding the further details of the strength of relationship between n-achievement and scholastic achievement for the three groups, the coefficient of correlation between the two variables was calculated separately for the three groups. The results are presented in Table 3.

TABLE 3
THE COEFFICIENT OF CORRELATION BETWEEN N-ACHIEVEMENT AND SCHOLASTIC ACHIEVEMENT FOR THE THREE GROUPS

<i>High Achievement</i>	<i>Average Achievement</i>	<i>Low Achievement</i>
.038	.089	.042

From Table 3 it is seen that there is positive relationship between n-achievement and scholastic achievement for all the three groups. The correlations were very low and statistically non-significant. Perhaps these low correlations are due to restricted range.

Conclusions

1. High and low achievers differ significantly in their n-achievement.
2. High achievers have higher n-achievement than low achievers.
3. Need-achievement is positively related to scholastic achievement and 13.69 per cent of the total variance in achievement is accountable by n-achievement.

Thus the hypothesis is rejected at .01 level.

References

- Atkinson, J. *et al.* Performance as a function of motive strength and expectancy of goal-attainment. In *Motive in fantasy and society*. D. Va. N. Com. Inc., London, 1956
- Bhatnagar, R.P. A study of some E.P.S variables as factors of academic achievement. *J. of applied Psy.*, 53, 2, 1969
- Chandrakala. Academic motivation and performance in school exam. *J Psychol. Research*, 16, 3, 1972
- Guanani, T. C. A comparative study of frustration reaction and achievement motive of high and low achievers. Unpublished M. Ed. thesis, Agra University, 1973

- McClelland, D. C. *The achievement motive*. N Y Appleton Century Crofts, 1953
- Mehta, Prayag. Level of need-achievement in high school boys *Indian Educational Review*, II, 2 Nov 1967
- The achievement motive in high school boys* Research Monograph, NCERT, New Delhi, 1969
- Mitchell, J V. Analysis of factorial dimensions of the achievement motivation construct. *J. Edu. Psy*, 52, 1961
- Myres, A. E. Risk taking and academic success and their relation to an objective measure of achievement motivation. A Technical Report and Research Bulletin, Office of Naval Research, U. S. Govt., 64
- Singh, N C P. A study on the relationship between need achievement and academic achievement of school-going children Unpub. M.Ed. thesis, Osmania University, Hyderabad, 1970
- Sinha, D N. Academic achievers and non-achievers United Publishers: 1 Katra Road, Allahabad, 1970 □

Book Reviews

Retention of Literacy

Factors Affecting the Retention of Literacy among Neoliterates.

M.G. Mali, Asha Prakashan, Gargoti, Distt. Kolhapur, pp. 200, 1979,

Price : Rs. 30 00.

THIS BOOK under review was presented as a Ph.D. thesis to the Shivaji University, Kolhapur. The book has been awarded K.M. Educational Award as the best thesis for the year 1979-80. The author has made a study of retention of literacy by 310 neoliterate adults round Gargoti. The results of this study and the conclusions based thereon are reported in the book.

The use of literacy in life is the aim of any adult literacy programme and this object is fulfilled only when enough literacy is retained by the learners. This object depends upon two principal conditions, viz, (i) sound mastery of the techniques of reading and writing, and (ii) regular provision of material for exercise of the skills acquired in the literacy class. The first condition is the responsibility of the literacy class and the second of the village library. If the grounding provided by the literacy class is weak, the adult will hardly be motivated to use his skills in life. If the grounding is adequate, but there is no provision of literature of suitable type for reading made available to the adult, he will lapse into illiteracy very rapidly. Each of these conditions are made up of a number of factors. At the literacy class stage, the adult must be strongly motivated, literature suited to his interests should be provided for learning practice, methods should be based on self-learning programmes and the work should not be rushed through, but sufficient spaced practice should be given to the adult. Great skill is required in the preparation and selection of suitable books at the post-literacy stage.

The book discusses the present position of retention of literacy and on the basis of the sample studied, evaluates the contribution of these factors to retention. Graded reading tests for assessing retention have been devised and given to the adults to determine their level of literacy retained. Statistical techniques have been used to correlate literacy retained with the factors affecting retention. The sample used, the tests used for evaluating retention and the statistical methods used for correlating retention with the factors have been explained at length in the book. The author has devoted separate chapters to discuss each of the factors affecting retention and made suggestions for their operation in the literacy class and at the post-literacy stage.

The book provides copious references to current literature in adult education and besides, provides an exhaustive bibliography at the end. The book is well worth study by all workers on adult education as it throws light on many of the problems faced by workers in this field and suggests remedies based on first-hand handling of these problems. Adult education is now receiving renewed interest under the Central Government's NAEP and this book supplies a long-felt need of the workers in the programme. It will serve as a valuable addition to all educational libraries.

D.V. CRICKERMANE

Director, Research Centre, Gokarn, Karnataka



In Brief

Institutional Costs of University Education

G.D. Sharma, Association of Indian Universities, pp 105, Price - Rs. 35.00.

THE PRESENT study and its findings have not appeared a day too soon. What is quite apparent in any institution whether of 'higher' or 'lower' learning (if such categories do exist) is that we tend to spend far too much on the paraphernalia rather than on the actual teaching-learning. If the alternative to sylvan surroundings is the multi-story classroom

building and a well-maintained campus and housing facilities, etc. this means numerous Class IV and Class III *Karmacharis* which in turn means higher learning is inevitably surrendered or compromised (we may choose our own term) within active Secretariat or Registrar's office, and substantially 'indifferent' academic staff. Studies after studies have indicated higher learning institutions and their working. Teachers are not becoming any industrious and neither is top heavy administration of the universities and colleges growing any responsive to the academic needs. There is too much politics all around these campuses. Studies in economics of education can merely diagnose the ills but cannot give any final cure. Still such studies like the present one are welcome. They do remind us that everything is not well not in the Indian higher learning—the higher cost does not necessarily indicate better quality teaching.

For this excellent and rewarding study Dr. Sharma deserves all praise.

College Administration. R.C. Srivastava, Metropolitan Book Co. Pvt. Ltd.,
New Delhi, 1980, pp. 308, Price : Rs 75.00

THE PRESENT publication is the result of a study conducted for the ICSSR. The research project was a status study of current practices of faculty and student participation in administration of institutions of higher learning. The researcher worker has been very candid in stating :

Faculty members and students everywhere are pressing for full prerogatives of their new-found professionalism and unionism, witness the phenomenon of 'academic negotiations' and collective bargaining. Yet the many academicians and students alike are reluctant to become involved in the affairs of university governance.

In fact the problem is not merely of non-participation of a few but the ones who press for this participation—the vocal members, who are they ? Should not someone undertake to find out the characteristics of the unionism and the personality structures of the so-called leaders ? The real key may not lie in mere participation but in the knowledge who comes forward for this 'voluntary' work and why.

Being a proper research work the investigator has gone through the

mill of describing every stage of study meticulously. He has defined the term administrator and faculty which leaves no scope to include the ones who while sitting on the fence can always queer the pitch. Be that as it may, the present work merits a careful study and offers us several cues to the solution of our outstanding problems.

Education and Jobs, S. Parmaji, Leeladevi Publications,
Delhi, pp. 117, Price : Rs 45.00.

THE PRESENT publication is the outcome of Ph D dissertation financed by ICSSR and voluntary assistance being rendered by LIC, Hyderabad and State Bank of India offices in the South. What the author had attempted to find was the relationship between job and job satisfaction against the background of academic qualifications. Technically speaking, the topic of the study was 'Relationship between general higher education and job aspirations, job satisfaction and job efficiency of non-professional job holders'. In a country like ours where job market is so tight the actual satisfaction can seldom be measured. Still, the present work does afford an insight into several of our persistent problems.

Two of the findings are of major interest to us. They are : (i) that the pre-job, job aspirations pertaining to clerical positions decrease in magnitude with increases in the levels of the educational attainment. The results indicate that only 12 per cent of the present clerical workers ever thought of becoming clerks, and (ii) that all clerical workers, irrespective of the levels of academic achievement, are dissatisfied and their dissatisfaction increases with the levels of educational attainments.

Numerous studies are available on bank employees and elsewhere but the results of one are seldom applicable on the other. Therefore, one could as well rely on one's common sense than on any study whatever. We know from experience that no one wishes to become a clerk and when one has no alternative he does become one to remain frustrated (mostly pretended because we are unwilling to accept our low calibre or social rejection) forever. The high correlation between efficiency and academic attainment can be understood.

A good study very well produced.

R. P. SINGH

Professor of Education, National Institute of Education, NCERT, New Delhi

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Journal of Higher Education

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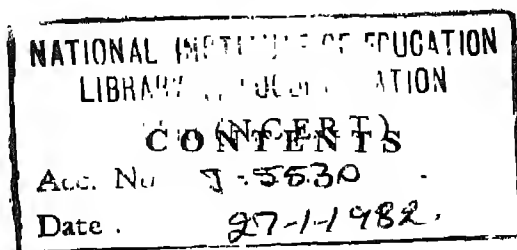
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Jean Piaget
 1896-1980

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The Piagetian Journey

from Mollusks through Moppets to Methaphor

(1896-1980)

N. VAIDYA

Professor, Regional College of Education, Ajmer

Biographical Note

IT IS SAID that a really great man is one who halts progress, at least in his subject, for about four centuries. In his life time, Piaget nearly won this distinction because he was no stranger in academic circles all over the world. Whereas his works were both acclaimed and ridiculed by the academicians, he built up his own Piagetian territory, caring little either way, single handed, which later on became world famous as the Geneva School. About the slow and grudging acceptance of his work, which hardly clicked contextually among workers when it came to intense criticism, he has frequently said :

I am naturalist and biologist by training interested in epistemological problems without ever having undertaken formal study (nor passed any examination) in psychology, my most central concern has always been to determine the contributions of the person's activities and the limiting aspects of the object in the process of acquiring knowledge. Fundamentally, it was the wish to resolve this problem using the experimental approach that brought me into the field of developmental psychology. But it follows logically since this point of view is not often held by psychologists in general—and even less by child psychologists that those who read my work find themselves confused (Flavell 1963)

Piaget was born on 9 August 1896 in Neuchatel, a French-speaking university town in Switzerland. Right from his early days he was very studious. He had also a lonely childhood because of the emotional outbursts of his neurotic mother and the detached attitude of his historian father. Interestingly enough, he wrote his first scientific paper at the age of ten for which he was offered the post of a curator at the local Natural History Museum, which offer was withdrawn immediately in view of his low age. He obtained his doctoral degree in zoology at the age of 22 on 'Mollusks

of Valias'. By observing, dissecting and experimenting with them, he applied the knowledge so gained to the origin of knowledge as it grew historically and the way it developed inside the head of child scientifically. In this encounter, he did not know what he was to accomplish in his life. So he flirted with several ideas and read deeply and reflectively in philosophy, psychology, sociology and history of science, etc. As his intellectual thirst did not quench, he went to Paris for pursuing clinical research at the Alfred Binet Laboratory. While he was paid for standardizing Burt's tests of reasoning, he deeply engrossed himself with pupil questions and errors which in a way provided him with missed insights into intellectual development.

Another scientific paper by him in this area won him in 1921 the job of Director of Studies at the J. J. Rousseau Institute in Geneva, a position which offered him ample opportunities for research and reflection. From this moment onward, he never looked back and was actively associated in different capacities with the following few universities like Neuchatel, Lausanne, Sorbonne, University of Geneva, as well as with the International Bureau of Education and Centre for Genetic Epistemology. He taught and researched in philosophy, psychology, sociology and scientific thought. He also co-edited two journals, namely, *Archives de Psychologie* and *Revue Suisse de Psychologie* for several years. He spent a lot of time daily on writing articles, papers, monographs and books. Being too busy, he was still approachable and tolerated fools with courtesy and pleasure. At other times, he could be equally cold. He earned respects and regards abundantly from those who worked closely with him. In 1964, V. N. Rockcastle observed him quite closely when Jean Piaget guided a workshop on Cognitive Development under the auspices of the National Science Foundation of the U. S. A. He found him little sophisticated, despite his keen international status. He loved simplicity, possessed sense of humour and showed a twinkle in big eye even when in disagreement. He knew the art of travelling light, that is, putting a small bag into a large one secretly for carrying back home her very dear and lovely Mollusks and no 'Foren' goods. In 1971, he became Professor Emeritus of the University of Geneva. He retired from teaching but, not at all, from research. He continued to write until the end of his life.

His Publications

Undoubtedly, Piaget wrote profusely in his life time in French. How he wrote is a matter of conjectures to the outsiders. Consider his following publications translated in English, written singly and in collaboration with others, starting from 1923.

- 1 *The Language of Thought of the Child*, 1923
- 2 *Judgement and Reasoning in the Child*, 1924

3. *The Child's Conception of the Physical World*, 1926
4. *The Moral Judgement of the Child*, 1932
5. *The Origin of Intelligence in Children*, 1936
6. *The Construction of Reality in the Child*, 1937
7. *The Child's Conception of Number*, 1941
8. *The Child's Construction of Physical Quantities*, 1942
9. *Play, Dreams and Imitations in Childhood*, 1945
10. *The Child's Conception of Time*, 1946
11. *The Child's Conception of Movement and Speed*, 1946
12. *The Child's Conception of Space*, 1948
13. *The Psychology of Intelligence*, 1950
14. *Play, Dreams and Imitation in Childhood*, 1951
15. *The Origin of Intelligence in Children*, 1952
16. *Logic and Psychology*, 1953
17. *The Construction of Reality in the Child*, 1954
18. *The Strategy of Genes*, 1957
19. *The Growth of Logical Thinking from Childhood to Adolescence*, 1958
20. *The Child's Conception of Geometry*, 1960
21. *The Early Growth of Logic in the Child*, 1964
22. *Mental Imagery in the Child*, 1966
23. *The Mechanisms of Perception*, 1969
24. *The Psychology of the Child*, 1969
25. *Science of Education and the Psychology of the Child*, 1969
26. *Genetic Epistemology*, 1970
27. *Biology and Knowledge*, 1971
28. *Insights and Illusions of Philosophy*, 1971
29. *Psychology and Epistemology Structuralism*, 1971
30. *Understanding and Causality*, 1974
31. *The Origin of the Idea of Chance in Children*, 1975
32. *The Grasp of Consciousness*, 1976

Surprisingly enough, this list is not complete for he has authored some more books whose dates of publication could not be ascertained. *Principles of Genetic Epistemology*, *Memory and Understanding*, and *Success and Understanding*.

The Cycle of Intellectual Development

From the above-mentioned chronology of his publications, it is abundantly clear that it is even difficult to read Piaget at one go. Perforce of circumstances, one has to start at one of the corners, go ahead on his Voyage of Discovery and see first-hand the vastness of his difficult work. Having flitted elsewhere and later on delved deep in the Piagetian territory, the Indian author of *Some Aspects of Piaget's Work and Science Teaching* remarked in a poetic fancy. "I have loved Piaget more than I have loved my wife for his creative work and intriguing system which are as

exciting as space travel and research" (Vandya 1971). He is not one Piaget but several if one takes into account the multisided aspects of his works. He is not only very much aware of the theoretical implications of the work and attacking problems from one's weakest points in the eyes of others, but also, he is quite imaginative and capable of choosing complicated techniques and methods relative to his select intellectual problems defined in the widest possible framework surpassing psychometry clearly and even development. Over a period of sixty years or so, he and his co-workers have contributed immensely to the whole field of psychology: perception, reasoning, intelligence, dreams, moral development, space, time, play, thinking from early childhood to late adolescence and other highly varied problem areas, for example, physics, mathematics, biology and logic. From his highly theoretical, abstract and imaginative frame of reference, he has devised highly original physical experiments which have won him world-wide acclaim (e.g. conservation experiments) and are admired highly by the researchers on cognitive development. Result! His theoretical frame of reference, an incomprehensible entity to many, possibly of less calibre, became a casualty rather than a causality. Here, even Professor Flavell is no exception, the first best American publicity officer Piaget had in the sixties.

According to him, intelligence develops in four stages: Sensory Motor (0-2 years), Pre-logical (2-7 years), Concrete (7-11 years) and Formal (11-15 years). Recently, he has hinted at the possibility of the fifth stage which covers the period from 15 to 20 years after taking into account factors like aptitude variations and commitment to individual careers against the backdrop of now less prominent general intellectual development. The first stage is of little educational significance but, at the same time, is at the bottom of all the succeeding stages. In the second stage, the thinking or reasoning is transductive, that is, from particular to particular. At the third stage, reality dominates thinking which is reversed at the fourth stage. Here, the adolescent pupil can set up all sorts of hypotheses, test them in varied contexts through control experiments, and may eventually pick up the various elements of scientific methods. Piaget then links up these stages with his self-designed symbolic logic, a branch of mathematics for analysing intellectual behaviour. Further, computer science is brought in and the whole scientifically discovered processes of pupil thought are very carefully hooked to the origin of knowledge, and, hence, experimental epistemology. It is then not difficult to see the passage of thought from stage to stage and the attainment of the highest rationality, potentially speaking in man.

Other Related Works

Incomplete conjectural research work very frequently raises more questions than it answers. His work met the same destiny as is seen by the

diverse publications in different areas of work which appeared in the sixties and seventies. Whereas the work of Piaget is supported in principle by the various authors, no systematic statement about the testable hypotheses so far appears for judging the weakness of his system. Even the main research frontier of logical thought now extended up to 20 years of age awaits immediate invasion. Now consider the chronology of publications by others which runs parallel to his main work:

1. Oaks, N.E. *Children's Explanation of Natural Phenomena*, 1947
2. Isaac, S. *Intellectual Growth in Young Children*, 1948
3. (i) Inhelder, Barbel. *Experimental Reasonings of Adolescents*, 1955
(ii) Inhelder, Barbel. *Learning and the Development of Cognition*, 1974
(iii) Inhelder, Barbel et al. (Eds.). *Piaget and His School*, 1976
4. Keats, J.A. *Formal Concrete Thought Processes*, 1955
5. (i) Lunzer, E.A. *Recent Studies in Britain Based on the Work of Jean Piaget*, 1960
(ii) Lunzer, E.A. *On Children's Thinking*, 1970
6. (i) Peel, F.A. *The Pupils' Thinking*, 1960
(ii) Peel, F.A. *The Nature of Adolescent Judgement*, 1971
7. Flavell, K. *The Growth of Basic Mathematical and Scientific Concepts*, 1961
8. (i) Flavell, J. *The Developmental Psychology of Jean Piaget*, 1963
(ii) Flavell, J. *Cognitive Development*, 1977
9. Ripple, R.F. and Rock, U.N. *Piaget Rediscovered*, 1964
10. (i) Wallace, J.C. *Concept Growth and the Education of the Child*, 1965
(ii) Wallace, J.C. *Stages and Transitions in Concept Development*, 1972
11. Almy, N. *Young Children's Thinking*, 1968
12. SCIS Curriculum Study Source Book, 1968
13. Siegel, I.E. *Logical Thinking in Children*, 1968
14. (i) Vaidya, N. *Problem Solving in Science*, 1968
(ii) Vaidya, N. *Some Aspects of Piaget's Works and Science Teaching*, 1971
(iii) Vaidya, N. and Rajput J.S. *Reshaping Our School Science Education*, 1976
(iv) Vaidya, N. *The Growth of Logical Thinking in Science during Adolescence*, 1979
(v) Vaidya, N. *Concept Formation*, 1980
(vi) Vaidya, N. *The Emerging Psychological Frame of Reference in Our School Science*, 1980
(vii) Vaidya, N. and Padmuni, M.S. *The Mathematical Structures Underlying Adolescent Thought*, 1980
15. Furth H.G. *Piaget and Knowledge*, 1968
16. Guntheug H. *Piaget's Theory of Intellectual Development*, 1968
17. Beard, R.M. *An Outline of Piaget's Development Psychology*, 1969
18. Boyle, D.G. *A Student's Guide to Piaget*, 1969
19. Elkind, David and Siegel, I.E. *Studies in Cognitive Development*, 1969
20. Kaiphus, R. et al. *The Developmental Theory of Piaget*, 1969
21. Hyde, D.M.G. *Piaget and Conceptual Development*, 1970
22. Richmond, P.U. *An Introduction to Piaget*, 1970
23. Green, et al. *Measurement and Piaget*, 1971
24. Mischel, T. *Cognitive Development and Epistemology*, 1971

25. Pulsaki, M.S. *Understanding Piaget*, 1971
26. Bolton, Neil. *The Psychology of Thinking*, 1972
27. Science 513. *Project*, 1972-75
28. Unesco. *The Development of Scientific and Mathematical Concepts*, 1972
29. Dienes, Z.P. *The Six Stages in the Process of Learning*, 1973
30. McNally, D.W. *Piaget, Education and Teaching*, 1973
31. (i) Collis, K.F. *Cognitive Development and Mathematics Learning*, 1974
 (ii) Collis, K.F. *The Development of Formal Reasoning: A Research Report*, 1975
 (iii) Collis, K.F. *A Study of Concrete and Formal Operations of School Mathematics*, 1975
 (iv) Collis, K.F. *et al. Classroom Examples of Cognitive Development Phenomena*, 1979
32. (i) Mudgil, S. *et al. The Piagetian Research*, 1974
 (ii) Mudgil, Sohan and Celia. *Piagetian Research* (six volumes), 1976
 (iii) Mudgil, S. *et al. Toward a Theory of Psychological Development within the Piagetian Context*, 1979
33. Phillips, D.G. *Research Related to the Work of Jean Piaget*, 1974
34. Schwebel, Milton *et al. (Ed.) Piaget in the Classroom*, 1974
35. Hoopes, *et al. Multi-dimensional Scaling of Piagetian Tasks Performance*, 1975
36. Howard, E. Grubher *et al. The Essential Piaget*, 1977
37. Grubher, B.A. (Ed.) *Piagetian Psychology*, 1977
38. Floyd, Ann. *Cognitive Development in School Years*, 1979
39. Lawson, Anton E. *The Psychology of Teaching for Thinking and Creativity*, 1979

Piaget was a great polymath who did not at all hesitate asking big questions considered definitely out of bounds by the contemporary twentieth century psychology and provided experimental answers to the philosophical questions, contrary to the philosophical tradition of Socrates, Plato, J.S. Mill, John Locke, David Hume and Immanuel Kant, to mention only a few. The spate of the above-mentioned books within the last two decades shows that the Piagetian territory is nascently fermenting, actively healthy and kicking, and definitely productive, either way (because failure in science is not a rare event), and hence can't be wished away for he showed relationships between his experimental epistemology and the entire human sciences.

Everlasting Nature of His Work

It is difficult to answer this question. Having been trained as a physicist, I did not know what I was doing while working on thinking: Concept development, problem solving and their underlying mathematical structures. Through sheer chance, I came across one of his books and found it too annoying. If one is really serious and works on the problems from its first

fundamentals one, curiously enough, finds oneself playing on a sea-saw with Piaget. The intellectual swing is experienced and then, one gravitates towards or away from his territory. This is not the way of answering the above-mentioned academic question. But here, it has to be so. Why? Whereas his journey had earlier begun from Mollusks to Moppets, mine began from the failure of understanding the deficit learning situations through teaching methodology, deaf to the mentality of children.

To illustrate the difficulties: Imagination, ingenuity and skill open up several diverging perspectives for any age-old problem stated in its very fundamentals. From the study of Mollusks, he formulated problem productively for the theory of knowledge for the next six decades by observing them, 'ferreting out their notions of time, space, numbers and ethics as he sprawled on the ground shooting marbles and playing other games' in the words of Leo (1980). Thus he challenged the then current wisdom about child development. As the time went by, he became a legend in his time with eyes aglaze as he tackled a series of intellectual problems, one after another. Consequence ! The splitting of Piaget ! He is Piaget Number One when one considers his slipshod work on cognition. He is Piaget Number Two if one considers his truly scientific work on perception. He is Piaget Number Three when one considers the educational implications arising out of his work. He is Piaget Number Four when he begins to revise his ideas very fast in the light of after thought, criticism, contradictory data and self-critical reflection. He is Piaget Number Five when he lifts a particular problem from its lowest plane to its highest epistemological plane whereby a sort of parallelism is established the way the idea was historically developed on the one hand and the way it arose scientifically in the child's mind right from its moment of inception. He is Piaget Number Six in the eyes of those who imagine that the basic Piagetian tenets cannot be proved wrong. He is, in the end, Piaget the Miscellaneous when he flourishes on misunderstandings raked up by those who do not understand him, or accuse him of not solving those problems which he did not propose to do. Whatever be the elephantine aspects of Piagetian work, any one who came close to him affirms to his greatness after all because 'it was a famous victory' at its best or the so called flop at its worst. The answer to the question raised above can now be answered as best as possible as follows :

1. "Nature desires that children should remain children before they are men", echoed Rousseau. Piaget made this clear distinction scientifically using Method Clinique, saying thereby, that child is not a little adult.
2. He provided the psychological theory of operations which develops in stages. Operations are actions which are internalized and reversible. They can be thus distinguished from simple action or goal-directed behaviour.

3. There is constant interaction between the organism and the environment out of which develop intellectual structures sequentially. Thought accords with things, actions, and even with itself in the inseparable functioning of organization and adaptation.
4. Equally proficient in zoology, logic and epistemology, he provided rich vocabulary having very deep meanings : adaptation, centration, conflict equilibration, isomorphism, INCR group, operation, reversibility and scheme of thought, etc
5. He brought out clearly the limitations of associationism, structuralism, functionalism, behaviourism, and Gestaltism. He developed experimental epistemology. Also he did not favour acceleration of thought.
6. In the Growth of Logical Thinking from Early Childhood to Late Adolescence, he propounded an open research frontier which is yet to be verified as well as tested.
7. His theory does not generate sharp hypotheses which can be tested easily by psychometry. The factorial interpretation of his work is just coming up.

Contradictory Comments

It is said that the five blind persons of Hindustan could not reconstruct the whole elephant for their individual observations lacked synthesis. Similarly, understanding Piaget in toto is a difficult enterprise. By putting aside the two variables of feeling and doing, he concentrated on the variable of cognition which he regarded as fundamental. While working with children, partly speculatively and partly experimentally and that also unscientifically, he interpreted the developing house of knowledge of an Epistemic (Universal) child by giving it an epistemological base which was objected to by the epistemologists. Consequently, he put up his own web by picking up threads from the various sciences in the name of so-called synthesis called compound in contrast to mixture in the language of chemistry. It is this compound which is highly sensitive to the past knowledge and is also a competitive construct of the things likely to be. It is, therefore, least surprising that his work has evoked diverse criticism. So by his critics he has been described as :

Discoverer of an unsuspected dimension of truth (Issac Nathan) ; Mastering at developing the theoretical implications of his work (Hunt) ; Zoologist by training, an epistemologist by vocation and logician by method (B. Inhelder) , In continuation psychologist by accident (D M. Hyde) ; Educator by mistake (N. Vaidya) ; An indelible colourizer (J. Flavell) ; Capable of hypothesizing or producing child following any system of logic (K. Lovell) ; A sort of bull's eye hitter

(N. Vaidya), Having 'scant regard for statistics, standardized tests and procedures' with speculation thrown in (Eric Lunzer), and *Le Patron* as lovingly called in Geneva (Vaidya 1971, 1979, 1980)

Even Jan Smedslund could not help commenting after having been ardenalized by the Piagetian territory for about eight years :

I probably owe more to Piaget than to any other single psychologist, yet I have become increasingly critical of his theoretical system. Working with children during my Piagetian period, I felt constrained to be detached, one-sidedly cognitive and entirely focused upon certain very abstract aspects of performance. What mattered to me then were the formal logical structures rather than the concrete living children in their total life situations. I tended to ignore the artificiality of the tasks and I was oblivious of the political implications of my work as supporting a one-sidedly intellectualistic and school-centred ideology. I doubt that practitioner can be a useful psychologist if he remains within that tradition. Piaget has contributed a wealth of brilliant and penetrating insights but they must be incorporated into a view of psychology which can be lived or practised rather than merely written and talked about in academic settings (Floyd 1979).

Borrowing from physics, it is simply a case of polarization after his interaction with Piaget because any logico-mathematical structure could be traced from its moment of origin under emotive conditions as well. It is precisely for this reason that Piaget ran away, literally speaking, from psychoanalysis. Even this remark may not hold true when he wrote another thought-provoking book on the Grasp of Consciousness towards the fag end of his life where he made children perform interesting activities, for example, Walking on All Fours and the Flying Balloon with a view to understand how consciousness, preconscious and unconscious hang together when children, varying over a very wide age range, begin to reflect on their actions and continual reflection on each other leading to conceptualization, understanding and failure. His use of vocabulary has specialized meanings. For illustration, take the word 'cognizance' which he used when any subject fully becomes conscious of a situation. To quote Piaget .

The study of cognizance had led us to place in the general perspective of the circular relationship between subject and object. The subject only learns to know himself when acting on the object, and the latter can become known only as a result of progress of the actions carried out on it. This explains the circle of the sciences, of which the solidarity that unites them is contrary to all linear hierarchy. Furthermore and most importantly, this explains the harmony between thought and reality. Since action springs from the laws of an organization, that is,

simultaneously one physical object among many and the source of the acting, then thinking subject.

Here is provided the inside developing picture of the black box nearly ignored by the behaviourists within the S-R paradigm trying hard to push back Sigmund Freud, J. B. Watson, B. F. Skinner, Robert Gagne, Max Wertheimer, Karl Duncker, J. S. Bruner and Ausubel. The same remark appears to apply to the advocates of heuristic method, inquiry training, guided discovery and creativity. So scheme, schema and schemata become the better bets when it comes to the development of educational constructs for the Education of the Head.

Educational Implications Based upon the Geneva School

True to the best tradition of pure mathematics and science, Piaget uttered very little on the educational significance of his vast work. Here, he need not be taken literally despite the fact that he used to say frequently, "I am not interested in psychology, education and children". It does not amount to going too far when he says that children learn through self activity. Secondly, children learn from each other in group situations. Thirdly, teachers are completely mistaken if they think that they can give an idea to their pupils; and that pupils have completely mastered the concept, if they give the right answer to the teachers' questions. They may accommodate to the new knowledge, a case of false knowledge in the phraseology of E. A. Lunzer, but it is only through their thinking and action on things, objects and ideas that they assimilate knowledge. They themselves have to be quite active in furthering their own knowledge. So he emphasizes Education for Understanding through exploration and invention of operations. Novelties of thought are created this way because teaching means creating structures which are pupil-discovered rather than transmitted to pupils, available only for blurting out on askance during examinations. He appears to be silent on incentives, rewards, and motivation. In his scheme, they are not raised to the status of mental structures necessary for spontaneous development. Only certain logico-mathematical structures in diverse subject-matter areas in science and mathematics, social awareness, of course, not excluded, are strictly speaking, given weightage. In *The Essential Piaget*, Howard E. Gruber and J. Jacques Voneche schematize the following four possible educational approaches based upon the application of the Piagetian ideas :

1. Taos : respect for the individual artisan. Abundance of semi-structured instructional and illustrative materials drawn from diverse fields of knowledge
2. Paris : pleasures of discussion between equal partners.

3. Athens : as reflected in the Socratic method.
4. Eldorado : as reflected in inquiry and discovery methods (Gruber and Voniche 1977).

Let us now refer to the work of other Piagetian workers. First is the Karplus Cycle of Learning. Robert Karplus and his co-workers have developed three distinct types of lessons in science which fascinate as well as fire the imagination of young children. In the first lesson, the child is asked to explore the given semi-structured materials in any way he likes. In the second lesson, he is compelled to invent the concept. In the third lesson, after the concept is fairly and firmly introduced, he is expected to apply it, and thus, see its utility and futility in other situations. Thus the teaching-learning situation is suitably adapted in an open manner to meet the mentality of children in the development of Piaget inspired Science Curriculum Improvement Study Project in the U S A. Apart from the significant works of Professors Peel, Lovell, Lunzer and Beard in the U. K., Dr. Wynne Harlen there has also done creditable work in matching natural environment to children's educational development the Piagetian way not only in the area of concept development in science but also in a very wide frame of reference as exemplified in the Progress in Learning Science Project for youngsters. Equally of great interest is the work of Dr. Michael Shayer which examines the conceptual demands made by a couple of scientific subjects on British G. C. E. children. Again in the Piagetian context, his work contributes to the science of science teaching in any situation seen to be a learning deficit one.

The centre now shifts to Australia. Fourthly, in the same Piagetian context, Professors K.F. Collis and J.B. Biggs in their recent publication *Classroom Examples of Cognitive Thought : The Solo Taxonomy*, have illustrated a rating scale where any given pupil response evoked by a specific task, each drawn from several school subjects, could be placed on any one of the following points or levels, namely, Pre-structural, Uni-structural, Multi-structural, Relational and Extended abstract regardless of the differing levels of intellectual development : Pre-operational, Early concrete, Middle concrete, Concrete generalization and Formal as defined by the Geneva School. On the very face of it, this Australian taxonomy very clearly impinges simultaneously in the triple areas of curriculum, teaching method and evaluation. If carefully applied, this exercise very clearly brings out the main strengths and weaknesses of pupil responses emitted in raw in the individual contexts of the various problems used in day-to-day classroom teaching. And when these responses are seen and examined cross-sectionally, they in a way inform the practising teachers about the properties of pupil thought processes at succeeding age levels. Whereas

Piagetian way focuses the consequent educational issues convergently, the Australian SOLO diverges, possibly the same, for the benefit of the Australian teachers to meet individual differences when pupils at different levels of development are found in the same class. And this is going to be a global classroom phenomenon.

Now coming home, not long ago, Professor J. K. Shukla talked of Need for Self-directed Change in Colleges of Education in India. Inspired by this ideal, Professor Vaidya and Dr. B. K. Sharma developed a Science Teacher Behaviour Inventory after having injected in it the Piagetian flavour. It had the following six dimensions, namely, Structuring the teaching, Structuring the learning, Structuring the materials, Structuring the classroom control, Silent activity and Confusion. Professor Vaidya and Shri T. S. Sandhu have documented studies hinting at the distinct possibility of Hump Effect during the transitory stage between the concrete and formal stages of mental development in the problem-solving context. Prof. Vaidya and Shri S.C. Jain are presently engaged in studying advanced problem-solving processes in physics. Equally worth referring to is an ERIC (NCERT) project in progress on the Determination and Development of Schemes of Thought in Science during Adolescence at the Regional College of Education, Ajmer. A chip of this project relates to the Acceleration of Thought on the Construct of Exclusion of Variables during Adolescence which is being studied by Professor Vaidya and Miss Padmini. Both of them have documented and made available a vague factorial structure of adolescent thought in the Piagetian context. Combining creativity, least understood in the Piagetian context, with the above-mentioned hypothesized construct is being investigated by Mrs. Avinash Grewal at the Regional College of Education, Bhopal. The educational implication arising out of these works may not be round the corner but they will definitely go a long way in clarifying several intellectual issues in the area of methodology of teaching, particularly speaking, concept formation and problem-solving as well as its modern versions like inquiry or discovery approach.

Lastly, Piaget's ancestry can be traced back to the intelligence testing at the Binet laboratory in Paris. Unlike others, he negotiated imaginatively round the Corner of Errors in assessing the nature of intelligence the other way round. With this step, he has influenced the initial, middle and end games of several workers all over the world. Like him, they are also now engaged in delineating this Piagetian territory very lovingly. Obeying the famous Inverse Square Law in Physics, nobody, beyond 10 km. or so away from Geneva knows the full import of Piaget's work where both its substance and shadow intermingle imperceptibly. The negotiating here is

becoming nearly impossible especially when Piaget is too fast in revising his ideas in the light of further reflection and criticism. All of us, therefore, interpret His Trace in heat of the moment. The vision of his work, may it be a case of one-sided interpretation, puts aside on the road several of the thinkers usually encountered in educational literature when it comes to the Education of the Head. In this context, what ought to be the main aim of education. Again to quote Piaget :

The principal goal of education is to create men who are capable of doing new things, not simply repeating what other generations have done .. men who are creators, inventors and discoverers. The second goal of education is to form minds which can be critical, can verify, and do not accept everything they are offered. The great danger today is from slogans, collective opinions, readymade trends of thought. We have to be able to resist individually to criticize to distinguish between what is proven and what is not. So we need pupils who are active, who learn early to find out by themselves partly by their own spontaneous activity and partly through material we set up for them who learn early to tell what is verifiable and what is simply the first idea to come to them (Ripple 1964)

Scientists discovered penicillin in the mouldy bread. About 2,500 years ago, Plato talked of cutting off the problems at their joints. In the process of interiorization of knowledge founded on action, Jean Piaget appears to have cut off several joints in the area of cognition by giving each of them an epistemological context within the black box as visualized by the behaviourists between Stimulus and the Response for the benefit of carrying out the needed structural improvements in the teaching-learning process by the practising teachers who may now know how to act decisively when they know how human mind reacts to concrete and absent situations at the various levels of intellectual development implying thereby that more and more inputs in education may not lead to more and more astounding results for vice versa may even hold true in the Genevan context. So, in the name of modernization, if any country simply downgrades the content, it is bound to generate allergies all around within its borders for the basic Piagetian essence Process, nay, Operation, at the cost of Product is just missing in this scheme. In summary, spin-off advantages await round the corner if one cares to turn one's gaze on the Genevan School so laboriously built imaginatively under the leadership of Professor Jean Piaget, the polymath.

References

- Bolton, Neil. *The psychology of thinking*. London: Methuen & Co. Ltd., 1972
- Collis, K.F. and Biggs, J.B. *Classroom examples of cognitive development phenomena*, Hobart-Australia: University of Tasmania, 1979
- Flavell, J.H. *The developmental psychology of Jean Piaget*. Princeton and London : D. Van Nostrand Co., 1963
- Floyd, Ann (Ed.) *Cognitive development in school years*. London : Crom Helm, 1979
- Gruber, Howard E. and Vonèche, J. Jackques. *The essential Piaget*. London : Routledge & Kegan Paul, 1977
- Leo, John. From Mollusks to Moppets. *Time*, Sept., 1980
- Lunzer, E.A. *The regulation of behaviour*. London : Staples Press, 1968
- Mudgil, Sohan and Celia. *Piagetian research*. Compilation and commentary in six volumes. London : NFER, 1976
- Peel, E.A. *The nature of adolescent judgement*. London : Staples Press, 1971
- Piaget, Jean. *The origin of intelligence in children*. New York : International Universities Press, 1952
- Piaget, Jean. *Science of education and the psychology of the child*. New York : Orion Press, 1969
- Piaget, Jean. *The grasp of consciousness*. London : Routledge & Kegan Paul, 1976
- Pulsaki, Mary. *Understanding Piaget*. New York : Harper & Row, 1971
- Ripple, Richard *et al.* Piaget re-discovered. *Journal of Research in Science Teaching*, II, 3, 1964
- Schwebel, Milton and Ralph, Jane. *Piaget in the classroom*. London : Routledge & Kegan Paul, 1974
- Vaidya, N. *Some aspects of Piaget's work and science teaching*. New Delhi : S. Chand & Co., 1971
- Vaidya, N. *The growth of logical thinking in science during adolescence*. New Delhi : Oxford and IBH Publishing Co., 1979
- Vaidya, N. *Concept formation*. Ajmer : Regional College of Education, 1980
- Wallace, J. G. *Concept growth and the education of the child* London : NFER, 1965 □

Comparison of Hindu and Muslim Student-Teachers' Responses to a measure of Authoritarianism in India

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THESE IS SOME justification in the assumption that religious and cultural differences affect the way in which individuals respond to the F-scale, a measure of antidemocratic (authoritarian) potential. Christie and Garcial (1951) administered F-scale to a group of California University students and college population from a South-Western city in the U. S. A. The comparison between the groups showed that the California groups were significantly lower and also that this group accepted 18 of the 30 items to a lesser degree than the other group. Similarly, Prothro and Melikian (1953) demonstrated a significant difference on 22 F-scale items plus items from other scales between 130 subjects (70 Christians and 60 Muslims) at the American University, Beirut, Lebanon. Another study by Cohn and Crasch (1954) showed that a sample of 140 workers in a German cosmetic factory had a mean F-scale score of 5.26 which according to the authors is "higher than the mean score for any group thus far reported in the literature". In India the studies of Bushan (1967, 1968) have reported mean scores of 5.10 and 5.11, while the studies of Raina (1969a, 1969b, 1971, 1974) have reported mean scores on 30 F-scale items ranging from 4.75 to 5.45.

Hindus and Muslims constitute the two largest communities in India and both are characterized by dissimilar religious philosophies and cultural orientations. Before the advent of Islam in the thirteenth century in this country the Hindu society was divided horizontally and neither Buddhism nor Jainism affected this division. The main social result of "the introduction of Islam into India", writes Paniker (1964) "was the division of society on vertical lines. Islam split the Indian society into two sections from top to bottom and what has now come to be known in the phraseology of today as two separate nations came into being from the beginning. Two parallel societies were established on the same soil". Jinnah, the creator of Pakistan, is reported to have asserted that the Muslims of India were a nation with a "distinctive culture and civilization, language

and literature, art and architecture, laws and moral codes, customs and calendar, history and traditions" (Collins and Lapierre 1976).

With this background, the author was motivated to see whether or not after the adoption of a democratic constitution some thirty years back and the reform measures suggested by various Education Commissions (1953, 1966), there has been any significant impact on the value judgements of the student-teachers who constitute the sample of this study. The next concern has been to know whether or not contrasting religious and cultural affiliations of the two groups of student-teachers (Hindus and Muslims) effect the extent of their authoritarianism. It was also the concern of the author to see whether or not there would be differences apparent in the individual items of the measure, and if there were differences what did they signify. And, the last concern has been to know what value systems can be gleaned as indicated by the responses of the two samples separately and as a group. This specific report, one of the several undertaken, is based on the results obtained by the use of the F-scale—a measure of the anti-democratic (authoritarian) potential, developed by the authors of *The Authoritarian Personality* (1950).

The Procedure

The author administered the Hindi version of the F-scale to 100 (50 Hindu and 50 Muslim) student-teachers of the Regional College of Education, Ajmer, Rajasthan, studying in the language stream during March 1976 and April 1977. Each Hindu student (studying Hindi) was matched with one Muslim student (studying Urdu) on the bases of age, education, sex and socio-economic status making 50 pairs in all. The mean age of the two groups was 23.40 years and each group had 42 males and 8 females. For the purpose of this study, it was assumed that the two groups of students belonged to two cultural groups.

The data were manipulated statistically in several ways. First, the total scores for the 30 item California F-scale were computed according to the directions of Adorno *et al.* (1950). The means and standard deviations for the sample and the two groups were computed separately, the difference between the means was computed by the use of t-test. Secondly, agreement and disagreement with the individual items by the two groups was computed separately. Any item that received a plus mark (+1, +2, +3) was considered as agreement, whereas any item which received a minus mark (-1, -2, -3) was considered as disagreement. The agreement and disagreement on each item, by the two sample groups, was compared by computing the chi-square. Third, the percentage of each group who agreed with each item was determined and the various items listed in rank

order of agreement for both groups. A comparison was made between the ranks. Lastly, an examination of the F-scale used in this study will show that in items number 29 and 30 a slight change has been made to make them suitable to Indian conditions

The Results

Table 1 shows the reliability of the F-scale scores for the total sample and the two groups separately. These coefficients agree fairly well with

TABLE 1
RELIABILITY OF THE F-SCALE

Property	N	Hindus	N	Muslims	Overall
Reliability*	60	87	50	89	88

*Corrected by Spearman-Brown Formula

two earlier coefficients of .81 and .86 arrived at by Rama (1969a, 1969b). It is obvious that the reliability coefficients are uniformly of a high order.

The difference between the mean F-scale scores of the Hindu (4.73) and Muslim (4.71) student-teachers was only 0.03, and statistically

TABLE 2
COMPARISON OF MEAN SCORES OF HINDU AND MUSLIM
STUDENT-TEACHERS ON F-SCALE

Group	Mean	S.D.	t'
Hindu	4.74	.43	.33*
Muslim	4.71	.49	
Total	4.63	.46	

* Difference is insignificant

insignificant ($t = .33$). This seems to indicate the possibility of some factor or factors being responsible for the observed phenomenon, viz. of no difference in the anti-democratic (authoritarian) potential, between the students belonging to two different cultural groups

Table 3 shows a comparison of the responses of Hindu and Muslim student-teachers to the individual items of the F-scale by the use of

TABLE 3
COMPARISON OF AGREEMENT AND DISAGREEMENT
ON INDIVIDUAL ITEMS OF THE F-SCALE FOR
HINDU AND MUSLIM STUDENT-TEACHERS

<i>Item Numbers*</i>	<i>Chi-square</i>
1	.00
2	.04
3	.00
4	.00
5	.00
6	.00
7	.00
8	.63
9	6.10**
10	1.08
11	.28
12	.10
13	9.02**
14	.00
15	1.09
16	.00
17	1.53
18	.76
19	7.84**
20	1.84
21	.08
22	1.03
23	.86
24	.75
25	8.90**
26	1.02
27	.69
28	9.00**
29	.36
30	.84

*Item numbers here and in Table 4 refer to author's as they were numerical order included in the version of the F-scale rather than that of Adorno's item numbers

**Differences are significant.

chi-square. It is noteworthy that out of 30 items, that constitute the F-scale in this study, the two groups differed significantly on five items (9, 13, 19, 25, 28) only. Therefore, the conclusion that the two sample groups, in general, do differ in the way of their responses, on a measure of authoritarianism, is not tenable.

Table 4 shows the relative and overall rank order for the 30 items of the F-scale for the two groups and the total sample based on the percentage agreement with each item.

HINDU AND MUSLIM STUDENT-TEACHERS' RESPONSES

TABLE 4

HINDU AND MUSLIM STUDENT-TEACHERS' AGREEMENT ON F-SCALE ITEMS

<i>Hindu Ranking According to Agreement</i>			<i>Muslim Ranking According to Agreement</i>
1	1	Obedience and respect for authority are the most important virtues children should learn	1
29	2	A person who has had manners, habits, and breeding can hardly expect to get along with decent people	30
25.5	3	Science has its place, but there are many important things that can never possibly be understood by the human mind	25
7.5	4	Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down	7
2	5	What this country needs most, more than laws and political programmes is a few courageous, tireless, devoted leaders in whom the people can put their faith.	2
20	6	No sane, normal, decent person could ever think of hurting a close friend or relative	15.5
5.5	7	Nobody ever learnt anything really important except through suffering	5.5
5.5	8	What the youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country	8
25.5	9	The insult to our honour should always be punished	9.5
9	10	There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.	5.5
10.5	11	Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people	9.5
10.5	12	When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things	11.5
12.5	13	Now-a-days more and more people are prying into matters that should remain personal and private.	28
16.5	14	If people would talk less and work more, everybody would be better off.	13
30	15	The businessman and the manufacturer are much more important to society than artist and the professor	27
3	16	Every person should have complete faith in some supernatural power whose decisions he obeys without question.	4
12.5	17	Some people are born with an urge to jump from high places.	19.5
22	18	People can be divided into two distinct classes: the weak and the strong	15.5
18.5	19	Some day it will probably be shown that astrology can explain a lot of things.	29

<i>Hindu Ranking According to Agreement</i>			<i>Muslim Ranking According to Agreement</i>
27	20.	Wars and social troubles may some day be ended by an earthquake or flood that will destroy the whole world	23
21	21.	No weakness or difficulty can hold us back if we have enough will power.	21.5
16.5	22.	Most people don't realize how much our lives are controlled by plots hatched in secret places	21.5
14.5	23.	Human nature being what it is, there will always be war and conflict.	19.5
7.5	24	Familiarity breeds contempt	3
28	25.	Now-a-days when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them	11.5
18.5	26.	Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.	23.5
14.5	27.	The wild sex life of the old Greeks and Romans was tame compared to some of the going-on in this country, even in places where people might least expect it.	17.5
4	28.	It is only natural and right that women be restricted in certain ways in which men have more freedom.	
23.5	29.	India is getting so far from the true Indian way of life that force may be necessary to restore it.	17.5
23.5	30.	After we finish off the Chinese and Paks, we ought to concentrate on other enemies of the human race such as rats, snakes and germs	23

In spite of the fact that there were some variations in the percentage responses to some items by the two groups, when the items were given a rank order, the ranking of 25 items was almost similar ($\rho = .72$). The maximum variation in the relative rank position of a particular item in the two groups is not more than seven positions from that of the other group excepting the five items that differed significantly. Lastly, some of the value judgement of the two groups of student-teachers are mentioned and discussed below.

Discussion

One of the results of this study is that the F-scale administered to 100 student-teachers has a high reliability for the two groups and the total sample.

The other important result of this study is a high (4.63) mean F-scale score for the total sample. The extent to which authoritarian attitudes of

student-teachers have changed since the adoption of the democratic constitution cannot be positively or definitively answered because no reference-point data exist, but it is obvious that the student-teachers of this sample are more authoritarian as compared to almost similar samples in the USA. A possible explanation of this phenomenon may be in the authoritarian Indian culture—a culture which Roy (1940) remarks is, "ideologically nearer to Fascism than realized by a few". In short, the results of this study confirm the findings of Bhuyan (1967, 1968), Cohn and Carsch (1954), Prothro and Melikian (1953) and Raina (1969a, 1969b, 1971, 1974) that persons living or coming from an authoritarian culture tend to score higher on the F-scale.

Table 2 indicates that there are no differences between the responses of the two samples of student-teachers. This phenomenon is confirmed by Table 3 where only 5 (nearly 17 per cent only) items show a chi-square difference beyond .01 level of significance. It is also important to note that on 8 items there is perfect agreement/disagreement between the two groups and again the value of chi-square for 11 items is less than unity. If religious and cultural differences are a recognized phenomenon between the two groups then apparently it casts a serious reflection on the validity of the F-scale.

The value systems evident from an inspection of items in order of agreement for the two groups seem to point out some definite conclusions. They relate to the following ideals (items 1, 3, 4, 5, 6, 7, 14, 16): need for children to obey and respect authority, the importance of science notwithstanding many things cannot be understood by the human mind, children as they grow up must get over rebellious ideas; need for a few faithful courageous devoted leaders; incapacity of a sane person to hurt a close friend or relative; important things are learnt through sufferings; need to talk less and work more, and need for complete faith in supernatural powers.

Both the groups prize the virtues of obedience to authority, both seem to be, perhaps, conscious of their helplessness and, therefore, realize the necessity of some devoted leaders who would regenerate the country. In short, given the devoted leaders, the student-teachers are prepared to act in a disciplined way by talking less and working hard with respect for authority. Submission to external authorities, devoted leaders, faith in supernatural powers—may probably be "due to some failure in the development of an inner authority, i.e. conscience" (Adorno *et al* 1950). Education for these student-teachers, then, would be an exercise in obedience.

Again, the fact that there is considerable difference in the extent to which both groups agreed with items 13, 19, 28 (Table 3), seem to point to

the fact that the members of the Hindu group may be more distrustful, more superstitious, and willing to restrict women in certain ways in which men have more freedom, than the Muslim group studied here. Also, items 9 and 25 which were the only two items with which the Muslim group indicated significantly greater agreement than the Hindu group seem to be related to authoritarian aggression like punishment for an insult to one's honour and protection against infection and disease in a fast moving world.

One final question remains to be answered: Is the F-scale used here valid? In case there are no significant differences in the two sample means of this study and there are very large areas of similarities than dissimilarities in value orientations, then some reservations on the validity of the F-scale, as a measure of anti-democratic (authoritarian) potential, are in order.

But it will, perhaps, be agreed upon that Islam in India lost much of its original character and adopted itself to local customs and usages. The process of interaction between Hinduism and Islam that ensued in the eighteenth century resulted into a distinct Indo-Islamic tradition. "This tradition", writes Momin (1977), "is reflected, at the popular level, in the existence of caste-like groups among Muslims, as well as of numerous cultural traits and features which have been borrowed from the Hindu environment". At the ideational level or philosophical level, the Indo-Islamic tradition has led to a composite style of literature, music, art and architecture. Again, Ahmed (1977) has conclusively shown that the socio-cultural life of Indian Muslims is not entirely governed by the Islamic code but by the composite cultural tradition which is an outcome of the historical interaction between Hinduism and Islam. Therefore, if there are no significant mean differences and the areas of agreement in the value structure are great, it is as it should be. The high means in an authoritarian culture point to the validity of the F-scale.

The results of this small study may be taken with an amount of caution since no steps were taken to ensure that the two groups of student-teachers studied here were actually representative of a larger section of the two populations. No attempt is also made to generalize from the results on the mean scores, however suggestive they might be.

References

- Adorno, T W *et al*, *The authoritarian personality*. New York : Harper Brothers, 1950
 Ahmed, Imtiaz *Family, kingship and marriage among Muslims in India*. Delhi : Manohar Book Service, 1977

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- Bushman, L. I. Personal factors in authoritarianism *Journal of Psychological Researches*, 1967, 11, 119-25
- — — A study of social attitudes of political party members *Indian Psychology Review*, 1968, 4, 141-42
- Christie, Richard and Garcia, J. Subcultural variations in authoritarian personality *Journal of Abnormal and Social Psychology*, October 1951, 457-69
- Cohn, T.S. and Carseh, H. Administration of the F-scale to a sample of Germans. *Journal of Abnormal and Social Psychology*, 1954, 49, 471
- Collins, Larry and Lapierre, Dominique. *Freedom at midnight* New Delhi: Vikas Publishing House, 1976
- Momin, A.R. Islam and the Indian cultural idiom. *The Hindustan Times*, 15 May 1977
- Panikar, K.M. *A survey of Indian history*. Bombay : Asia Publishing House, 1964
- Prothro, L.T. and Melikian, L. The California public opinion scale in an authoritarian culture *Public Opinion Quarterly*, 1953, 17, 353-62
- Report of the education commission*. New Delhi : Ministry of Education, Government of India, 1953
- Report of the secondary education commission*. New Delhi : Ministry of Education, Government of India, 1966
- Raina, T.N. An application of F-scale on Indian student-teachers. *Indian Psychology Review*, 1969a, 1, 4-7
- — — — — Authoritarianism of Indian teacher educators *Journal of Teacher Education*, Fall, 1969b, 20, 317-22
- — — — — Authoritarianism of teacher-educators and student-teachers . A comparison. *Journal of Psychological Researches*, 1971, 15, 96-100
- — — — — A comparison of Indian education students belonging to four political parties on a measure of authoritarianism. *Journal of Social Psychology*, 1974, 92, 311-13
- Roy, M.N. *The philosophy of Fascism*. Calcutta : Renaissance Publishers, 1940 □

Teachers' Values and Job Satisfaction

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The present study involves 143 (99 men and 44 women) teachers teaching in various schools of Sikkim. A job satisfaction scale standardized by the investigator and the study of values of Allport-Vernon-Lindzey were used. It is found that men teachers' personality profile consists of higher degree of political and theoretical values while social, political and economic values predominate in women teachers. Religious and aesthetic values lay only at the plinth of the personality profiles of both men and women teachers. Only 44.06 per cent teachers and significantly greater number of women than men teachers are satisfied at their job. Job satisfaction bears the highest but inverse relationship with political values (-686). Religious and aesthetic values are positively related to job satisfaction. Religious and aesthetic values predict 8 per cent and 6 per cent job satisfaction whereas 43 per cent of it is inversely determined by political values.

EDUCATION is fundamentally the influence which the teacher, a more mature and experienced personality, exerts on his students, the immature and growing personalities, entrusted to his care. In these days of increasing institutional regimentation of education, bigger and better school buildings, elaborate equipment like electronic computers and teaching machines, scientific methods and new media, and impressive curricula, it becomes necessary to re-emphasize the human aspect in pedagogy. The Education Commission (1964-66) stated, "of all the different factors which influence the quality of education and its contribution to national development, the quality, competence and character of teachers are undoubtedly the most significant".

Studies of Charles (1929) and Hart (1934) on the characteristics seemingly common to both good and bad teachers, presaged many others as

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attempts to investigate into the quality of teachers. Ryans (1969) presented a *modern* version using refined statistical procedures in this direction Adaval (1952), Anand (1961) and Kulandaival and Rao (1967) have also contributed to this type of investigations. Debnath (1971), Jaymina (1962), Prasad (1970), Bhattacharya (1966) and Samantroy (1971) have examined teaching efficiency of teachers. We may include studies on teachers' interests, attitudes and aptitudes in this domain of research on competency of teachers. Bhattacharya (1959) investigated into the vocational interest pattern of prospective teachers of higher secondary schools. Quraishi made a study (1972) entitled, 'Personality, attitudes and classroom behaviour of Teachers'. Pandey (1968), Shah (1962) and Sharma (1969) have gone into the details of aptitudes of teachers. In their quest to understand teachers' personality Bush (1954), Dwivedi (1970), Chaturvedi (1970) and Anand (1972) had probed into the basic nature of teacher-pupil relationships.

It will be appropriate to comment that teachers' personality still remains to be known through systematic research. Any purposeful effort, in the study of job satisfaction remains confined to the field of industrial psychology. This might have been due to industry being well acknowledged sector of productivity and education having been kept unrelated to productivity. But in the new wave of realistic thoughts being given to education so as to relate it to productivity, the studies on teachers' personality and job satisfaction have attained a reasonable relevance. In continuation of his studies (1972, 1977) the investigator in this paper has attempted to study the following questions. (i) Teachers' profile of values, (ii) Teachers' job satisfaction, (iii) Relationship between job satisfaction and values, and (iv) Determinants of job satisfaction. The tools used were (i) job satisfaction scale (Anand 1972), and (ii) Modified version of Allport-Vernon-Lindzey study of values. The sample consisted of 165 teachers of various schools in Sikkim. In the final analysis, a few incomplete scales were excluded and interpretations have been made for 143 (99 men and 44 women) teachers

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Analysis and Interpretations

1. Teachers' Profile of Values

A lively academic discussion still continues about the definition, nature and assessment of personality. Ledford (1968), Dicaprio (1974), and Stagner (1974) have interpreted in their own style the various theories as propounded by Freud, Jung, Adler, Allport and Murphy, etc. In his Personality Assessment, Vernon (1973) has made a lucid commentary on the various approaches being followed in understanding personality. Research-

chers have put forward their best arguments and justifications for adopting any one approach in their investigations.

Keeping the purposes of this study in view, the investigator has applied Allport-Vernon-Lindzey study of values to analyse the personality structure of teachers. Allport believes that a person can best be understood by the knowledge of his pattern of values. Spranger proposed six (theoretical, economic, aesthetic, social, political and religious) directions that values may take and each individual has a different amount of each of those six, with one usually predominating. Such value orientations are highly integrating and give direction to life. One is more likely to find strong value orientation in matured people than in disturbed personalities.

Table I indicates statistics for men and women teachers obtaining different ranges of scores on the six values.

TABLE I
STANDARD ERROR OF DIFFERENCE BETWEEN SCORES OBTAINED
BY MEN AND WOMEN TEACHERS ON SIX VALUES

<i>Values</i>	<i>Category of Teachers</i>	<i>Mean</i>	<i>Medn.</i>	<i>C. R.</i>
Theoretical	Men	44.28	44.73	5.25*
	Women	39.14	38.79	
Economic	Men	41.19	40.89	0.73
	Women	41.96	40.86	
Aesthetic	Men	36.65	36.41	0.70
	Women	37.45	37.18	
Social	Men	43.11	43.83	2.65*
	Women	45.97	46.28	
Political	Men	44.27	44.27	1.06
	Women	43.25	43.38	
Religious	Men	30.39	30.02	1.59
	Women	32.34	32.17	

* $p < .01$

It is found that mean score obtained by men teachers on theoretical values is significantly higher than that of women. While the mean score of women teachers on social values is significantly higher than that of men. It can be inferred that men teachers' interests are more empirical, critical and rational and then interests are necessarily more after intellectual pursuits than those of women teachers; whereas women teachers are more kind, sympathetic and loving than men teachers. The interpretation can further be elaborated on the basis of Table 2.

TEACHERS' VALUES AND JOB SATISFACTION

TABLE 2

TEACHERS' RANK ORDER OF THE MEAN SCORES
ON SIX VALUES

Values	Rank Order for Teachers	
	Men	Women
Theoretical	1	4
Economic	4	3
Aesthetic	5	5
Social	3	1
Political	2	2
Religious	6	6

(P = 600)

The coefficient of correlation between the mean scores of men and women teachers on six values is found to be positive. This shows that there is moderate degree of similarity among the values possessed by men and women teachers.

TABLE 3

SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORE ON
VALUES

Comparison Groups Value	Men Teachers C.R.	Women Teachers C.R.
Theoretical-economic	+2.98 **	-2.39 *
Theoretical-aesthetic	+8.69 **	+1.37 n.s.
Theoretical-social	+1.34 n.s.	-5.85 **
Theoretical-political	+0.1 n.s.	-3.67 **
Theoretical-religious	+16.19 **	+5.15 **
Economic-aesthetic	+5.00 **	+3.58 **
Economic-social	-2.12 *	-3.34 **
Economic-political	-3.27 **	-1.12 n.s.
Economic-religious	+13.26 **	+7.13 **
Aesthetic-social	-5.92 **	-6.81 **
Aesthetic-political	-8.70 **	-4.83 **
Social-political	-1.33 n.s.	+2.39 **
Social-religious	+13.57 **	+10.16 **
Political-religious	+16.14 **	+8.38 **

N=144, of -142, *P < .05 ** P < .01

The study corroborates the findings of Pal (1970) that teachers place greatest importance to political values. Political values are not necessarily exhibited only by politicians but men of these values are essentially considered to be after seeking power and domination over others. These very desired outcomes from teaching profession in schools can hardly be derived and its failure may give rise to discontent and unpleasantness. It will be

taken as quite an unpleasant finding that men teachers possess social values to a greater extent than economic and aesthetic values. In the accepted parlance the process of education is nothing but social interaction among the teachers and the taught. A high degree of compassion and respect for mankind are the natural exhibits of men of social values and it can hardly be imagined that they would be absent or lacking in teachers. Again, the lowest degree of religious values as indicated to be possessed by both men and women teachers go contrary to the demands of teaching profession—professed to be a missionary one. Truly, Allport-Vernon-Lindzey manual (1960) and Gupta (1976) record the highest mean score on religious values as obtained by men teachers. Kaul (1972) found that popular teachers were significantly high on theoretical, social, political and religious values and were significantly low on economic and aesthetic values as compared with the unpopular teachers. These contradictory findings may be due to geographical backgrounds of the samples which the researcher proposes to investigate into in the ensuing studies.

Men teachers' personality profile contains theoretical values next to political values. But for social and political values, men teachers cherish significantly greater theoretical values, than that of economic, aesthetic and religious values. In other words, men teachers are essentially intense in their desire to know and understand the world within and around them. This refutes the prevalent common notion that economic considerations predominate the 'style of life' of teachers. It is observed that economic values in men teachers outweigh only aesthetic and religious values the least claimed by them.

In the case of women teachers, it is revealed that their mean score on social values is significantly greater than their mean scores on the rest of five values. Contrary to men teachers, theoretical values of women teachers have been recorded significantly greater than only religious values. In these findings, it is observed that women teachers, too, do not lag behind men teachers in cherishing political values. Leaving aside social values, political and economic values have been found to be possessed by women teachers to a significantly greater amount than the theoretical, aesthetic and religious values.

In brief, men teachers' personality profile consists of higher degrees of political and theoretical values, and women teachers predominate in social, political and economic values. Religious and aesthetic values lie only at the plinth of the personality profiles of both men and women teachers.

In this context, Table 4 presents another feature of valuable interpretation. In this Table the following limits set by Allport-Vernon-Lindzey

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TABLE 4

SIGNIFICANCE OF DIFFERENCE BETWEEN NUMBER OF
MEN AND WOMEN TEACHERS OBTAINING HIGH AND LOW
SCORES ON SIX VALUES

Values	High Scores Proportion = Z	Low Scores Proportion = Z
Theoretical	182 .341* 2.37 *	141 068 1.24 *
Economic	101 .364 3.90 **	222 068 2.52 *
Aesthetic	192 .023 2.69 **	.131 432 4.68 **
Social	.596 455 1.57 *	061 .000 1.88 *
Political	.273 545 3.48 **	.101 023 1.76 *
Religious	000 .000 n.s	.555 .773 2.79 **

(proportion in each second row stands for women teachers)

*Significant at .05 level

**Significant at .01 level

manual (1960), the proportion of teachers obtaining outstanding high, high, outstanding low and low scores on these six values, have been tabulated. It is revealed that there is a significant difference between the proportions of men and women teachers who obtain high scores on theoretical, economic and political values, and this difference goes in favour of women teachers. Surprisingly there are more men than women teachers who personify higher aesthetic values. On the other hand, again, the men teachers outnumber women teachers on lower economic values. On religious values, women teachers significantly outnumber men teachers in scoring low scores on these least acquired values by teachers.

2. Teachers' Job Satisfaction

The job satisfaction scale of Anand (1972) has been used to measure the job satisfaction of teachers. In this scale of 30 statements with maximum possible score of 120, the minimum score of 80 has been established as the minimum score for a teacher to be identified as satisfied. In the 1977 study, the investigator had postulated three levels of job satisfaction (Table 5).

TABLE 5
TEACHERS' LEVEL OF JOB SATISFACTION

Level of Job Satisfaction	Number of Teachers		
	Men	Women	Total
I	42	21	63
II	54	23	77
III	3	0	3

It is observed that there are only 61 (44.06 per cent) teachers who are enjoying the first level of job satisfaction. They are considered to be satisfied in their job. It is not to be taken as healthy position in any way to find 55.94 per cent teachers below the level of satisfaction. While this finding resembles the previous findings of Anand (1972, 1977), it fails to corroborate Marr and Mathur's (1973) findings where teacher-educators have been found to be satisfied at their job. It is found that more women than men teachers, i.e. proportions of .480 and .424, respectively, are placed in the first level of job satisfaction. It is further substantiated by their obtained mean scores on the scale.

Teachers	Mean	S.D.	C.R.	P
Men	75.21	15.72	2.12	.05
Women	79.96	10.50		

Women teachers score significantly higher than men teachers. This confirms the investigator's earlier findings and interpretations. Teaching in schools has been considered to be respectful but this does not hold good for men teachers even in these days of unemployment. Men resort to teaching in schools under compulsion and reservations. The time has yet not come when young persons full of enthusiasm and vigour will come forward voluntarily and willingly to accept teaching in schools as their first liked or preferred choice.

3. Relationship between Job Satisfaction and Values

Job satisfaction is a very complex and comprehensive phenomenon. It can hardly be seen in isolation from life satisfaction. Perhaps in many ways these two fields may add to or subtract from the total fund of satisfaction assimilated by an individual. It may be a question of individual differences as from what sources one draws satisfaction and what brings dissatisfaction to an individual. But job remains to be the important concern for each individual at which one spends most of his life time and energy. Job can prove to be a challenge to be met with for exploring and proving one's worth, earning him respect and money—the mainsprings of satisfaction. Or, on the other hand, job can prove to be a stumbling block in the full realization of one's personality. It will not be an exaggeration to

comment that job remains to be the main source of satisfaction and dissatisfaction in one's life. Job is a direction of life, one has adopted; value is direction of life one wishes to tread. How they are related to each other is a matter of great interest.

Table 6 presents the coefficients of correlation between job satisfaction and six values. Job satisfaction bears maximum coefficient of correlation

TABLE 6
COEFFICIENTS OF CORRELATION BETWEEN JOB SATISFACTION
AND VALUES

Values	r	P
Theoretical	-.188	< .05
Economic	.006	.05
Aesthetic	.165	< .05
Social	-.035	.05
Political	-.686	< .01
Religious	.164	< .05

of $-.686$ with political values. This high inverse relationship sounds as if men of political values can hardly find any job satisfaction in school teaching. Political values refer to one's direction of life seeking for power and domination over others. Teaching opens avenues to attain and strengthen moral powers, leaves a few, if any, channel to grab power and domination as enunciated in political values. Again, theoretical values are also found to bear negative relationship with job satisfaction. A man of theoretical values is necessarily after the search of truth and knowledge. It may look queer that men of these values should not find job satisfaction in teaching profession. The things may appear to be paradoxical on the surface but there is a substance underneath this revelation. Teaching profession in colleges and universities does provide ample opportunities for the search of truth and knowledge but teaching profession related to school is far remote from this gum reality. Teaching in schools is much commended and recommended by people who themselves have come out of it or have never entered into it. Lack of or absence of any honourable place in the society, renders school land barren for any worthwhile intellectual pursuits in schools.

It is quite pleasing, if not surprising, that absence of relationship between job satisfaction and economic values refutes the general notion that school teachers lack job satisfaction because of their monetary considerations. Truly, the aesthetic and religious values are revealed to be positively related to job satisfaction in teaching in schools. From this one may infer that people of non-political values interested in aesthetic and religious

mode of life, can find job satisfaction and contribute their bit to their own resonality and teaching job in schools.

4. *Determinants of Job Satisfaction*

Including age and sex, values have been examined as to the extent they become the determinants of job satisfaction for teachers in schools. A regression equation has been arrived at following Doo Little method (Garett 1969). Table 7 presents the matrix of coefficients of correlation between job satisfaction ('dependent variable') and other independent variables, i.e. values, age and sex.

TABLE 7
MATRIX OF COEFFICIENTS OF CORRELATION BETWEEN JOB
SATISFACTION AND OTHER INDEPENDENT VARIABLES

	Age	Sex	Values					
			Theo	Lev.	Aesth	Soci	Pol	Reli
Job satisfaction	.058	.245	-.188	.006	.165	.035	.686	.164
Age		.358	.015	.094	.108	.024	.019	.067
Sex			.779	.064	.061	.239	.086	.136
Theoretical				-.049	-.357	.112	-.174	-.232
Economics					-.374	-.015	-.092	.463
Aesthetic						-.304	-.036	.008
Social							-.328	-.106
Political								-.242

Regression equation was arrived at as under :

$$Z_c = .078Z_2 + .331Z_5 + .491Z_8 + .409Z_1 + .626Z_7$$

From Table 7, the equation is reduced to :

$$Z_c = .019 + .055 + .081 + .002 - .429$$

It is revealed that 43 per cent of job satisfaction is inversely predicted by political values. It may be said that political values in teachers block their satisfaction up to the extent of 43 per cent. In the presence of these values it is only to the extent of 6 and 8 per cent of teachers' job satisfaction that is predicted by their possession of aesthetic and religious values. Sex accounts for the prediction of 2 per cent job satisfaction. In his study (1977) the investigator had found that 30 per cent of job satisfaction was accounted for the possession of degree of extraversion and sex as found to be determinant of 9 per cent of job satisfaction. Their findings indicate a great scope of research in this direction. Vroom (1964) has remarked that some researchers have maintained that good performance results from job satisfaction while authors argue that such performance results in satisfaction. These remarks emphasize the work itself to be the source of satisfaction. Further studies on personality components and job satisfaction are needed to clarify this point of view.

References

- Adaval, S.B. An investigation into the qualities of teachers under training Ph.D thesis, Allahabad University, 1952
- Anand, K.K. Selection of men school teachers. Ph.D thesis, Punjab University, 1961
- Anand, S.P. A study of teacher-pupil relationship in higher secondary classes in Delhi. Ph.D. thesis Delhi University, 1972
- Anand, S.P. School teachers and job-satisfaction *Teacher Education*, VII (1), 16-23, 1972
- Anand, S.P. School teachers - Job satisfaction vs. extraversion and neuroticism. *Indian Educational Review*, XII (2), 68-78, 1977
- Allport-Vernon-Lindzey *Study of values manual* Boston : Houghton Mifflin Company, 1960
- Bhattacharya, S.B.L. Vocational interest pattern of prospective teachers of higher secondary schools in Uttar Pradesh Ph.D thesis, Lucknow University, 1959
- Bhattacharya, S. and Shah, M.M. *Try and standardization of teacher efficiency*. Baroda : Centre of Advanced Study in Education, M.S. University, 1966
- Bush, M.B. (Ed.) *A survey of research in education*. Baroda : M.S. University, 1974
- Bush, Robert Nelson. *The teacher-pupil relationship*. New York : Prentice-Hall Inc , 1954
- Charles, W.W. and Douglas Waples *The Commonwealth teacher training study* Chicago : University of Chicago Press, 1929
- Chaturvedi, N. Personality as a factor in teacher-student deviation Ph.D. thesis, Agra University, 1970
- Debnath, H.N. Teaching efficiency : Its measurement and some determinants Ph.D thesis, Vishwa Bharati University, 1971
- Dicaprio, Nicholas S. *Personality theories* W.B. Saunders Co, 1974
- Dwivedi, M.P. A study of personality structure of teachers and students and their relationship. Ph.D. thesis, Gorakhpur University, 1970
- Education Commission (1964-66) *Education and National Development* New Delhi : NCERT
- Garett, F. Henry. *Statistics in education and psychology*. Bombay : Vakils, Feffer and Simons Private Ltd., 1969
- Gupta, S.K. A comparative study of values among postgraduate students of different faculties at Kurukshetra *Journal of Education and Psychology*, 33 (4), 221-27, 1976
- Hart, J.W. *Teachers and Teaching*. New York : Macmillan Company, 1934
- Jayamma, M.S. Construction and standardization of an inventory for predicting teacher efficiency. Ph.D. thesis, M.S. University, 1962
- Kaul, L. Factorial study of certain personality variables of popular teachers in secondary schools. Ph.D. thesis, Kurukshetra University, 1972
- Kulandavel, K. and Rao, T.R.S. Qualities of good teacher and a good student. Coimbatore : R.K. Mission Vidyalya, 1967
- Ledford, Bischof I. *Interpreting personality theories*. Harper & Row, 1968

INDIAN EDUCATIONAL REVIEW

- Marr, Evelyn and Mathur, R. K. Job satisfaction of teacher-educators. *Indian Educational Review*, 8 (8), 10-12, 1973
- Pal, S.K. *Personality study*. Allahabad: United Publishers, 1970
- Pandey, K.P. Construction and standardization of a teaching aptitude test. Ph.D. thesis, Jiwaji University, 1968
- Prasad, M. Evaluation of professional efficiency and abilities of primary school teachers. Ph.D. thesis, Sagor University, 1970
- Quraishi, Z.M. Personality, attitudes and classroom behaviour of teachers. Ph.D. thesis, M.S. University, 1972
- Rao, T.V. Research on work values: A summary. *Indian Educational Review*, 10(2), 30-44, 1975
- Ryans, David. *Characteristics of teachers*. Delhi: Sterling Publishers, 1969
- Samantary, G.K. A study of teacher attitude and its relationship with teaching efficiency. Ph.D. thesis, University of Sambalpur, 1971
- Shah, M.M. An aptitude test for secondary school teachers- Construction and standardization. Ph.D. thesis, M.S. University, 1962
- Sharma, S.N. A teaching aptitude test for elementary school teachers. Ph.D. thesis, Patna University, 1969
- Stagner, Ross. *Psychology of personality*. McGraw Hill Book Co., 1974
- Vernon, Philip E. *Personality assessment*. Methuen & Co., 1973
- Vroom, V.H. *Work and motivation*. New York: John Wiley, 1964

On Relative Efficiency of Examiners

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In this paper Joreskog's model of congeneric test is used for estimating the relative efficiency of one examiner as compared to another under the assumption that two examiners are used for evaluating the same set of scripts. An exact test of significance has also been applied to test the significance of relative efficiency

KAMP AND MELLFNBURGH (1976) have used Joreskog's (1971) general model of congeneric test for studying the problem of agreement between two or more raters used as test instruments. In this paper same model has been used for estimating the relative efficiency of two examiners using the method of Grubbs (1973). The exact test of hypothesis about Grubbs' estimators developed by himself has been used for testing the relative efficiency of two examiners. The case of three or more examiners is being dealt in a separate paper.

The Model

Assuming sample values y_{ij} to denote the observed scores on the i -th answer script by the j -th examiner, $i=1,2, \dots, n$, $j=1,2$, the Joreskog's (1971) model may, in a simplified form, be written as

$$y_{ij} = \beta_j + T_i + e_{ij} \quad (1)$$

where, T_i denote the true score, β_j the bias of the j -th examiner and e_{ij} the random error of evaluation. It is assumed that e_{ij} are normally distributed with mean 0 and variance σ^2_e and are independent of T_i . The true score T_i is also assumed to follow the normal distribution with mean μ and variance σ^2 .

Notations

In continuation to the notation of the previous section we can write more explicitly the sample values $y_{11}, y_{21}, \dots, y_{n1}$, and $y_{12}, y_{22}, \dots, y_{n2}$

*The authors are thankful to the authorities of Dibrugarh University for making the data available to them

as the observed scores by Examiner 1 and Examiner 2, respectively, for the same set of n scripts. Then the sample means of observed scores can be written as

$$y_1 = \sum_{i=1}^n y_{1i} \quad \text{and} \quad \bar{y}_2 = \sum_{i=1}^n y_{2i} \quad \dots (2)$$

The expression for variance of the observed scores of Examiner 1 can be written as

$$s_{y_1}^2 = \frac{1}{n-1} \sum_{i=1}^n (y_{1i} - \bar{y}_1)^2 \quad \dots (3)$$

Similarly, for Examiner 2, the expression for variance of observed scores is

$$s_{y_2}^2 = \frac{1}{n-1} \sum_{i=1}^n (y_{2i} - \bar{y}_2)^2 \quad \dots (4)$$

The expression for co-variance of observed scores of two examiners is

$$s_{y_1 y_2} = \frac{1}{n-1} \sum_{i=1}^n (y_{1i} - \bar{y}_1) (y_{2i} - \bar{y}_2) \quad \dots (5)$$

Relative Efficiency

The efficiency of an examiner is defined as the inverse of the population variance of his errors of evaluation. Obviously, the smaller this variance, larger the efficiency. Denoting by σ_{e1}^2 and σ_{e2}^2 the variances of errors of evaluation of Examiner 1 and Examiner 2, respectively, the expression for their efficiency E_1 and E_2 (say) may be written as

$$E_1 = \frac{1}{\sigma_{e1}^2} \quad \text{and} \quad E_2 = \frac{1}{\sigma_{e2}^2} \quad \dots ()$$

The formula for computing percentage relative efficiency of Examiner 1 as compared to Examiner 2 is then given by

$$R = \{ (1/\sigma_{e1}^2) / (1/\sigma_{e2}^2) \} \times 100 \quad \dots (7)$$

Estimating the Relative Efficiency

An estimate of relative efficiency R given by (7) can be found out by constructing suitable estimates of σ_{e1}^2 and σ_{e2}^2 in terms of observed scores

y_{ij} . We shall consider here the estimates suggested by Grubbs (1973) as given below :

$$\sigma_{e1}^2 = s_{y1}^2 - s_{y1y2} \quad (8)$$

$$\sigma_{e2}^2 = s_{y2}^2 - s_{y1y2} \quad (9)$$

These estimates are unbiased and maximum likelihood

The estimate R of the relative efficiency of Examiner 1 as compared to Examiner 2 (expressed as percentage) can now be written as

$$R = \frac{s_{y2}^2 - s_{y1y2}}{s_{y1}^2 - s_{y1y2}} \quad (10)$$

Testing of Hypothesis

For the two examiners case, a test for testing the null hypothesis that the two examiners are equally efficient against the alternate hypothesis that they are not, is equivalent to test the hypothesis that $H_0 : (R=1)$ against $H_1 : (R \neq 1)$ which, in turn, is equivalent to $H_0 : (\sigma_{e1} = \sigma_{e2})$ against $H_1 : (\sigma_{e1} \neq \sigma_{e2})$

An exact test for this can be developed by considering the variance and co-variance of the transformed variates

$$u_i = y_{1i} + y_{2i} \quad (11)$$

$$v_i = y_{1i} - y_{2i} \quad (12)$$

and the correlation co-efficient r between u and v . The test statistic can be defined as

$$t = \gamma(u, v) \sqrt{n-2} / \{1 - \gamma^2(u, v)\}^{1/2} \quad (13)$$

which follows a student t distribution with $n-2$ degrees of freedom

Illustration

The observed scores on 18 scripts by two examiners, shown below, were considered for illustration. This has been treated as the sample data from an infinite population.

Examiner 1 :	52	56	54	46	54	54	56	52	52	45	39	30	55	45	59	42	39	40
Examiner 2 :	50	40	52	53	30	49	50	55	48	40	45	42	48	42	48	32	40	47

Using the formulae (8), (9) and (10), the values of the estimates of the variances of errors of evaluation of Examiner 1 and Examiner 2 and the relative efficiency are found to be

$$\sigma_{e1}^2 = 46.4313, \quad \sigma_{e2}^2 = 30.9575 \text{ and } R = 66.67\%$$

This shows that the efficiency of Examiner 1 is 66.67 per cent [of that of Examiner 2. Again, using the equation (11), (12) and (13), the value

of t statistic calculated from the observed scores is found to be 1.5572, Comparing this value with $t_{.05}(16) = 1.746$, we conclude that the hypothesis that the two examiners are equally efficient may not be rejected even though the efficiency of Examiner 1 is only 66 per cent of that of Examiner 2.

References

- Grubbs, Frank E. Errors of measurement, precision, accuracy and the statistical comparison of measuring instruments. *Technometrics*, 1973, 15, 53-66
- Joreskog, K.G. Statistical analysis of sets of congeneric tests. *Psychometrika*, 1971, 36, 109-133
- Kamp Var daar, and Mellenburgh, G.J. Agreement between raters. *Educational and psychological measurement*, 1976, 36, 311-317 □

Imagery as a Mediator in the Learning of Connected Discourse

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THE EXPANDING field of research in imagery has already developed a variety of significant findings. Several orientations in studies of imagery can be found in the current literature. One of the orientations in the field of research in imagery is represented by the works of Paivio (1969, 1970, 1971). Paivio's main concern has been with the effects of stimulus characteristics, such as perceived vividness or concreteness of events, usually language symbols, on the efficiency of learning processes. As a stimulus attribute, imagery has been defined in terms of image-arousing value or concreteness of the stimulus material. The dimension has been defined by average rating that a group of subjects assign to a word on a low-imagery high-imagery scale (Paivio, Yuille and Madigan 1968).

Instructions or training on the use of imagery has been most common method of manipulating the variable experimentally (Bower 1970, Bugelski, Kidd and Segman 1968, Paivio and Yuille 1967, 1969). Other experimental manipulations include the use of pictures as mediators (Davidson 1964, Reese 1965, Rowher, Lynch, Levin and Susuki 1967) and variation in presentation rate, which presumably influence image-formation or utilization time (Bugelski *et al.* 1968, Paivio and Csapo 1969).

In another framework, imagery has been defined in terms of individual differences based on subjects' reports of vividness of imaginal experiences (Galton 1883, Richardson 1969). Individual differences in imagery have been investigated using both ratings of the subjective vividness of experienced imagery (Sheehan 1966) and spatial manipulation ability tests (Ernest and Paivio 1969) as predictors of task performance. Individual differences in effective imagery modalities have also been inferred from sensory deficits such as blindness (Paivio and Okovita 1971).

The above variables have been found to be effective in paired-associate

learning task and recall. Exhaustive reviews are available in Bower (1972), Paivio (1971), Richardson (1969), and Sheehan (1972).

The huge bulk of research findings on the mediational role of imagery and on the individual differences in imagery reveal two essential common inferences. On the one hand, it seems possible to extend the imagery results by incorporating some variation within the learning material of extended nature ordinarily found in school texts with respect to their imagery value by using words of varying degrees of imagery-concrete capacity. On the other hand, in spite of the contradictory findings, the effectiveness of individual differences in imagery is gaining growing support and it is apparent that imagery is quantifiable and the individuals can be screened according to their imagery ability.

The Present Study

The present investigation was designed to study the functional relationship between learning and imagery with extended passages of different imagery contexts as stimuli. Our major problem was to extend the positive effect of imagery on paired-associate learning and memory to textbook passages changing the imagery context of the passage by substituting high or low concrete-imagery words in the passage. The basic assumption of the study was that it was possible to increase or decrease the imagery context of the passages usually found in school texts, using high imagery-concrete words or using low concrete-imagery words respectively. It was also assumed that these changes in the imagery-concrete value of the words have some definite impact upon the learning of subjects with different imagery abilities or with equal imagery ability, screened on the basis of some imagery scale. It was, therefore, hypothesized that learning from materials adding high imagery-concrete words would be greater than the learning from the materials using control or low imagery-concrete words. It was further expected that pupils with high imagery ability would benefit more than the pupils with low imagery ability from the material using high imagery-concrete words. Thus the theoretical paradigm of the study assumed a 3×3 interactional pattern which may be symbolically and diagrammatically presented as follows.

Method and Procedure

In order to study the problem a passage from a traditional textbook of history for Class IX (Chowdhury's *Swadeshkatha*) was selected. The length of the passage was the average length of a lesson usually taught

THEORETICAL PARADIGM OF THE STUDY

Subjects		Learning Materials		
		<i>H</i>	<i>C</i>	<i>L</i>
	H	HIW × HIG	CIW × HIG	LIW × HIG
	A	HIW × AIG	CIW × AIG	LIW × AIG
	L	HIW × LIG	CIW × LIG	LIW × LIG

Notations

H=High; C=Control; L=Low, A=Average

IW=Imagery-concrete words

IG=Imagery group

Hypotheses

H 1	:	\bar{x}	HIW	>	\bar{x}	CIW
H 2	:	\bar{x}	HIW	>	\bar{x}	LIW
H 3	:	\bar{x}	CIW	>	\bar{x}	LIW
H 4	:	\bar{x}	HIW × HIG	>	\bar{x}	HIW × LIG
H 5	:	\bar{x}	CIW × HIG	=	\bar{x}	CIW × LIG
H 6	:	\bar{x}	LIW × HIG	=	\bar{x}	LIW × LIG

in Class IX of secondary schools in West Bengal. The passage was of average imagery context (as determined by group ratings) and was selected from one of the topics found most interesting to the students of Class IX. Lists of adjectives and of nouns except proper nouns were drawn up from the passage. Then for each adjective and noun a set of synonyms or relevant substitute words likely to be of either high or low-imagery value was prepared. A list of 920 words (control, set of synonyms and substitute words) was drawn up. Eighty repeated words were included in the list for estimating within-group stability of ratings. This list of 1,000 words was then assessed for its extent of familiarity to pupils of Class IX on a dichotomous scale. The age range for these pupils was 13-15 years. The capacity of each word to evoke imagery was assessed on a three-point numerical scale representing high, average and low imagery. The same procedure was followed for the ratings of concreteness. The ratings for imagery and concreteness of the words were done following the general procedure described by Paivio, *et al.* (1968). Subjects were the pupils of Class IX. Of the 920 words, 724 words fulfilled the criteria set for selecting the final list of words. The criteria were as follows:

1. Words rated as familiar by 80 per cent of the pupils
2. Words rated as high in imagery and high in concreteness value by 50 per cent or more of the pupils
3. Words rated as average in imagery and average in concreteness value by 50 per cent or more of the pupils
4. Words rated as low in imagery and low in concreteness value by 50 per cent or more of the pupils

After eliminating five words for their ambiguous grammatical status, the final list of standardized words was prepared with 719 words. The stability of the ratings was established from the high correlation between the two sets of scores of the repeated items for each of the two attributes—imagery ($r = .97$) and concreteness ($r = .98$). Again, the correlation between imagery and concreteness was found to be high ($r = .96$).

The basic passage was then edited to two alternative versions (high and low), one using standardized high imagery-concrete words, and the second substituting words of low imagery-concrete value. The content material of these three forms of presentations was essentially the same. The identical nature of the content of the three versions (high, low and control) was verified by a panel of five history teachers.

Table 1 gives the account of the words in the three versions of the passage.

TABLE 1

<i>Description of the Words</i>	<i>Number of Words in the Three Versions</i>		
	<i>High (H)</i>	<i>Control (C)</i>	<i>Low (L)</i>
Nouns and adjectives in the passage excluding proper nouns	—	341	—
Nouns and adjectives in the passage excluding the repeated ones	—	232	—
Words (nouns and adjectives) repeated in the passage	—	109	—
Words for which no substitutes were available	17	17	17
Words for which substitutes (either high or low) were available (critical words)	—	215	—
Words for which substitutes were available	181	—	165
Words repeated	81	—	101
Words common to H and C version	34	34	—
Words common to C and L version	—	50	50
Total words substituted with repetition	262	—	266
Percentage of the words substituted	27.30	—	27.71

A terminal test on the subject-matter content of the passage was developed to measure the performance of the pupils in the experiment proper. The test more or less satisfied the basic conditions of a good objective test. The reliability coefficients of the criterion measure were highly significant (odd-even split-half = .88, method of rational equivalence = .78). A practice set (a small passage and a short questionnaire on the passage) was also prepared for making the experimental sample conversant with the learning task of the experiment proper.

Sampling

Now for selecting the experimental sample and for engineering the groups the vividness of visual imagery questionnaire of Marks (1973) was adapted in Bengali to classify the subjects into high, average and low-imagery groups. The Bengali version of the questionnaire was found to be a highly reliable and valid test for the purpose. Odd-even split-half reliability coefficient was .88 and retest reliability coefficient was .87. Tetrachoric coefficient of correlation was computed to measure the validity of the items which was found to be high. A panel of experts in psychology agreed that the items were from everyday experience and rich in arousing visual imagery.

For the purpose of partialling out the effect of previous knowledge of history from the experimental sample, a history achievement test was developed locally and standardized for the pupils of Class IX. The reliability and validity coefficients of the test were found to be high. Odd-even split-half reliability coefficient was found to be .87 and test-retest reliability coefficient was .80. The validity coefficients for boys and girls respectively were .61 and .58. The standard error of the highest coefficient was .025. Furthermore, to remove the effect of general intelligence from the experimental sample Cattell's culture fair intelligence test was applied with the Bengali version of the instructions as prescribed by Cattell and Cattell (1959).

All the three tests, viz Bengali version of VVIQ, history achievement test and Cattell's culture fair intelligence test were administered on a sample of 658 subjects of which 62 cases were eliminated for some reason or other and final selection of experimental sample was made from 596 pupils (303 boys). Their age range was 13-15 years, mean 14.6. Mean and standard deviation of the sample were 68.76 and 18.66, respectively.

It was found that $\pm .5\alpha$ range splits the entire sample into more or less three equal groups. Therefore, the criterion for high, average and low-imagery groups was fixed as follows:

1. Scores above $+\ .5\alpha$ for low-imagery group
2. Scores above $- .5\alpha$ but below $+\ .5\alpha$ for average imagery group
3. Scores below $- .5\alpha$ for high imagery group

Some empirical adjustments were made to obtain the final matching groups. In order to find the equivalence of the groups, one-way analysis of variance (Guilford 1954) was conducted separately with intelligence scores and history achievement scores of the experimental subjects. F-ratios for intelligence scores and history achievement scores were .023 and .02, respectively. The insignificant F-ratios showed that no intergroup

differences exist with respect to intelligence and history achievement of the experimental sample.

The experimental sample consisted of 216 pupils of Class IX represented equally by the two sexes and divided equally into three equivalent groups with respect to imagery, intelligence and history achievement. Each of the three groups was again sub-divided into three equal groups of high, average and low-imagery but each group was equivalent with respect to intelligence and history achievement. Thus there were nine groups of pupils, each consisting of 12 boys and 12 girls, equivalent with respect to intelligence and history achievement.

Now the experimental sample (9×24 or 216) was tested in small groups with three types of learning materials preceded by the practice set and followed by a terminal test. Thus each equivalent group of 72 was tested with one presentation of the material. Since each of these groups of 72 consisted of high, average and low imagers, taking the horizontal cross section, each type of imagers was tested with each type of material.

A two-tail analysis of variance was conducted with the obtained scores. F-test was followed by t-test to test the hypothesis. The results are given in Table 2.

TABLE 2

F for Imagery material	=	11.88 p	< .01
F for Imagery groups	=	2.47 p	> .05
F for Interaction	=	.42 p	> .05

T-TEST OF THE SPECIFIC HYPOTHESIS

Hypotheses	M_1	M_2	$M_1 - M_2$	1	2	t	p	N
1	16.74	15.68	1.06	2.56	2.48	2.52	.01/p < .05	72
2	16.74	14.90	1.84	2.56	2.37	4.47	p < .01	72
3	15.68	14.90	.78	2.48	2.37	1.92	p > .05	72

Discussion

From the results it appears that learning performance of the pupils was better for high version of the passage in comparison to the control and the low version of the passage. But control material did not show any significant superiority over the low version in this respect. That is to say, the results in general reveal that when extended passages were constructed with standardized high imagery-concrete words (as determined by group ratings) learning was better than learning of the same passage

adding low-imagery concrete words. The results do not appear to be much surprising as it has been demonstrated by Paivio and his colleagues (1963, 1965, 1969, 1971) that learnability of image-evoking words is better than that of materials which are image-evoking. Moreover, the same general result has been noted with image-evoking sentences (Cunningham 1972) and image-evoking short prose passages (Yuille and Paivio 1969).

The study also indicates that the effect of high or low imagery-concrete value of the material is indifferent to the imagery ability of the pupils (F for imagery groups 2.47; $p .05$). Nor was there any interaction between the imagery value of the materials and imagery ability of the pupils (F for interaction .42). The results are incongruence with the earlier investigations (Carey 1915, Fernald 1912, Davis 1932, Kousey, 1935, Griffiths 1927). Sheehan and Neisser (1969) also found that the initial division of the subjects into high or low-imagers did not predict memory tasks. Ernest and Paivio (1969, 1971) suggested that various aspects of subjects' imagery abilities are irrelevant to intentional learning but may be relevant to incidental learning. But the novelty of the findings of this study lies in the fact that the effectiveness of the imagery-concrete value of words on paired-associate learning can be extended to connected discourse usually found in school texts. That is to say, the study shows that the experimenter provided high-imagery-concrete words in text materials facilitated learning. Thus the effect of imagery strategy found to be efficient on paired-associate learning tasks seem to generalize more complex form of information processing as well.

The above results may be interpreted in terms of Paivio's dual coding hypothesis. The differential effects of the high and low versions (or vivid and dull narrative as Kirchner would say) of the passage are due to the different ways of processing the material. Learning of high-imagery version seems to involve imaginal coding to a greater extent than the low-imagery version, while low version relies for understanding on the part of the learner mainly upon access to verbal processes. It suggests that imagery could not be considered as an epiphenomenon in learning, in fact, it facilitates learning at least when the material is high imagery-concrete in nature. The superiority of high version may be due to access to two processes—verbal and imaginal rather than only one. If the two types of coding are normally available for processing incoming information, then only limited access to one of them will result in inferior performances.

It may be argued that imagery is likely to be a determining factor in the learning of extended passages of high-imagery potency because of the relatively greater number of associations elicited by the concrete high imagery adjectives and nouns. Pompi and Lachman (1967) suggested that imagery may play significant role in the recall of connected discourse. Kirchner (1969) found that people who heard the vivid narrative recalled

more nouns than who heard dull narrative. Lachman and Dooling (1968), Pompei and Lachman (1967) on the basis of their investigations suggested that one of the factors affecting connected discourse seems to be visual images. Therefore, it appears that the subjects in this experiment might have stored the subject-matter of the high version via images over and above verbal processes.

In conclusion it may be suggested that it is possible to devise textbook materials using words of different concrete-imagery values which in turn may facilitate or hinder learning by increasing or decreasing the overall imagery context of the material as the case may be. Specifically, what follows from the results of the study is that textbook materials using standardized high imagery-concrete words are more effective than the textbook materials with control words or adding low concrete-imagery words.

Further studies to standardize a large sample of nouns, adjectives, verbs and adverbs in terms of their familiarity, imagery and concreteness should be undertaken so as to provide teachers, authors and researchers with a 'word-bank' for their respective uses in textbooks, classroom instructions, etc.

References

- Anderson, R.C., and Kulhavy, R.W. Imagery and prose learning. *Journal of Educational Psychology*, 1972, 63, 242-243
- Bandopadhyay, H. *Bangiya sabdakosh*, 2nd. Edn., Vol. 1. New Delhi : Sahitya Akademi, 1967
- H. *Bangiya sabdakosh*, 2nd Edn. Vol. 2. New Delhi : Sahitya Akademi, 1967
- Basu, R. *Chalantika*, 11th Edn., Calcutta : M.C. Sarkar & Sons, 1970
- Betts, G.H. *The distribution and functions of mental imagery* New work : Teachers' College, Columbia University, 1909
- Bower, G.H. Imagery as a relational organizer in associative learning. *Journal of Verbal Learning and Verbal Behaviour*, 1970, 9, 529-33
- Mental imagery and associative learning. In L. Gregg (Ed.), *Cognition in learning and memory*, New York : Wiley, 1972
- Bugelski, B. R. Words and things and images, *American Psychologist*, 1970, 25, 1002-12
- Kidd, E. and Segmen, J. Image as a mediator in one-trial paired-associate learning *Journal of Experimental Psychology*, 1968, 76, 69-73
- Chatterjee, M. K. Emergence of imagery as a mediator in learning and memory. *Teacher Today*, 1976, Oct-Dec, 68-74
- Chowdhury, K. C. *Sivadeshikatha* Calcutta : The Central Book Agency, 1975
- Cronbach, L. J. (Ed.) *Text materials in modern education* University of Illinois Press, 1955
- Davis, F. C. The functional significance of imagery differences. *Journal of Experimental Psychology*, 1932, 15, 630-61

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- Ernest, C. H., and Paivio, A. Imagery ability in paired-associate and incidental learning. *Psychonomic Science*, 1969, 15, 181-82
- Galton, F. *Inquiries into human faculty and its development*. London : Macmillan, 1883
- Gullford, J. P. *Fundamental statistics in psychology and education* New York . McGraw-Hill, 1954
- Hebb, D. O. Concerning imagery. *Psychological Review*, 1968, 75, 466-77
- Holt R. R. Imagery : The return of the ostracized. *American Psychologist*, 1964, 19, 254-64
- Kirchner, E. P. Vividness of adjectives and the recall of meaningful verbal material *Psychonomic Science*, 1969, 15, 71-72
- Levin, J. R. Issues in imagery and learning : Verbal and visual variables. Symposium paper presented at the annual meeting of the Western Psychological Association, San Francisco, April 1971
- Marks, D. F. Individual differences in the vividness of visual imagery and their effect on function. In P. Sheehan (Ed) *The function and nature of imagery*. New York : Academic Press, 1972
- — Visual imagery differences in the recall of pictures *British Journal of Psychology*, 1973, 64, 17-24
- Mitra, S. *Saral bangla abhidhan*, 8th edn. Calcutta : New Bengal Press, 1971
- Montague, W.F. and Carter, J.F. Vividness of imagery in recalling connected discourse. *Journal of Educational Psychology*, 1973, 64, 72-75
- Paivio, A. Mental imagery in associative learning and memory *Psychological Review*, 1969, 76, 3, 241-263
- — *Imagery and verbal processes* Holt, Rinehart and Winston, 1971
- — and Chapo, K. Concrete-image and verbal memory codes *Journal of Experimental Psychology*, 1969, 80, 279-285
- — and Smythe, P.C. Word imagery, frequency, and meaningfulness in short-term memory *Psychonomic Science*, 1971, 22, 333-335
- — Yuille, J.C. and Madigan, S.A. Concreteness, imagery, and meaningfulness values for 925 nouns *Journal of Experimental Psychology*, 1968, 76, (1, Pt. 2)
- — Yuille, J.C. and Symthe, P.C. Stimulus and response abstractness, imagery, and meaningfulness, and reported mediators in paired-associate learning. *Canadian Journal of Psychology* 1966, 20, 362-377
- Reese, H. W. Imagery in paired-associate learning in children *Journal of Experimental Child Psychology*, 1965, 2, 290-296
- — Imagery and contextual meaning. In H.W. Reese Imagery in children's learning : A symposium, *Psychological Bulletin*, 1970, 73, 40, 04-414
- Richardson, A. *Mental Imagery*. New York . Springer, 1969
- Rohwer, W. D. (Jr.) Images and pictures in children's learning: Research results and instructional implications In H.W. Reese Imagery in children's learning : A symposium *Psychological Bulletin*, 1970, 73, 393-403
- — Lynch, S., Levin, J. R. and Suzuki, N. Pictorial and verbal factors in the efficient learning of paired -associates *Journal of Educational Psychology*, 1967, 58, 278-284

- Shoehan, P.W. Accuracy and vividness of visual images *Perceptual and Motor Skills*, 1966, 23, 391-398(a)
- A shortened form of Betts' questionnaire upon mental imagery. *Journal of Clinical Psychology*, 1967, 23, 386-389 (a)
- Individual difference in vividness of imagery and the function of imagery in incidental learning. *Australian Journal of Psychology*, 1971, 23, 279-288 (b)
- The function and nature of imagery*. New York and London : Academic Press, 1972
- Yuille, J.C. and Paivio, A. Imagery and verbal mediation instructions in paired-associate learning. *Journal of Experimental Psychology*, 1968, 78, 436-441
- and Paivio, A. Abstractness and recall of connected discourse. *Journal of Experimental Psychology*, 1969, 82, 467-471 □

Personality Adjustment of Creative and Non-creative Student-Teachers in India

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LYTTON (1971), referring to his earlier discussions on the characteristics of convergers, and divergers, writes : "There emerged a view of convergers—often held by psychologists as defensive, inhibited, even maladjusted individuals. The complementary view of divergers is that of persons who, to the extent that they are creative, open to experience, and uninhibited, display a calender of virtues—wholesomeness, good adjustment, self-actualizing power (p. 61)". Kneller (1965), on the other hand, writes : "Since the creative person is naturally independent and unconventional, we should not be surprised to learn that the highly creative student is less adjusted' to his fellows than the overage pupil (p. 68)". The contradiction that one encounters in the above writings about the personality adjustment of creative persons is not without factual support. Indeed, there are empirical studies to support each of the above viewpoints. Consider them in turn.

As regards personal adjustment perhaps the best to mention may be the study conducted at the IPAR, Berkeley, using as subjects creative writer, architects and mathematicians (Barron 1969). This study used, among other instruments, the Minnesota Multiphasic Personality Inventory (MMPI) which provides scores on such psychiatric conditions as hypochondriasis, depression, hysteria, psychopathic deviation, paranoia, etc. The findings about the mental health of the creative groups as measured by this inventory were quite interesting. As Barron reports :

The average creative writer, in fact, is in the upper 15 per cent of the general population on all measures of psychopathology furnished by this test. The average creative architect is less markedly deviant, but is still consistently and substantially higher than the average for the

general population on these indices of psychopathological disposition (p 72).

Some studies have contradicted the above results. For example, Ellis (1904) and Cox (1926) found very little psychosis among the men of genius and Blatt (See Parnes 1971) reported that the self-descriptions of his creative subjects were 'less divergent' from the ideal pattern of mental health. Commenting upon this finding of his, Blatt wrote :

Considering the frequent myth about the relationship between creativity and insanity which had its major impetus in the writings of Lombroso, Lange, Eichbaum and Jacobson .., the results of the present study tend to contradict this and to confirm the more recent views of Maslow . and Rogers . . . that creativity represents the fullest expression of psychological health (*ibid.*, p 19)

In line with Blatt's study, Raskin's (1936) biographical study of British scientists and men of letters also rejected the theory that genius as a class is associated with delicate health or mental instability.

Findings of studies about the social adjustment, too, seem to be contradictory. Walberg (1969), for instance, found that creative adolescents identified by prize and award-winning in the arts and sciences seemed happily integrated into the social hierarchy of the school. Both artist and scientist groups more often described themselves as friendly and outgoing. They liked school and applied themselves to their studies. On the other hand, Schaefer (1970) in his intensive clinical study of ten exceptionally creative adolescent girls found that they appeared to be 'somewhat aloof from their parents and generally did not participate in the group activities of their families. Also they generally admitted to have a quite small circle of friends. However, Schaefer reports that the girls showed considerable interest in such activities as school play, art clubs, etc.

Purpose of the Study

The purpose of the present investigation was to collect further evidence on the personality adjustment of creative and non-creative persons in the Indian context

Hypothesis

The hypothesis formulated for verification in this study was that : Creative student-teachers are significantly higher than the non-creative student-

teachers on mean scores for the different dimensions of personality adjustment.

The Sample

The sample for this study consisted of two groups of student-teachers drawn from the total population of B.Ed students in the city of Lucknow. There were 522 students enrolled in the six institutions running B.Ed classes in this city—out of which only 442 (379 females and 63 males) could be available to administer the Torrance tests of creative thinking (1966) as others were not attending their classes due to different reasons. From these 442, the two groups were drawn on the basis of total creativity scores* obtained by each subject as follows :

1. *The Creative Group* : These were the subjects in the top 20 per cent on the measures of creativity (N=89)
2. *The Non-creative Group* : These were the subjects in the bottom 20 per cent on the measures of creativity (N=89).

The Tools

As indicated above, Torrance tests of creative thinking (TTCT) were used to identify creative and non-creative subjects. Since studies (e.g. Basu and Jawa 1973) have shown that the verbal and figural forms of the TTCT are not the measures of the same ability but they measure rather different kinds of abilities suggesting thereby that "to get a fair and objective picture of creativity as defined by Torrance both the forms—verbal and figural—should be used" (ibid., p. 26), the investigator decided to use both the forms in this investigation. However, in doing so it was thought proper to make a selection of items from these batteries instead of using all the tasks included in them so that the total testing time may not be so much as to distract the subjects' interests and thus vitiate their responses. While selecting the items it was borne in mind that all the three types of tasks included in these batteries, namely, verbal tasks using verbal stimuli, verbal tasks using non-verbal stimuli, and non-verbal tasks be represented in this selection so as to get as complete a picture of the subject's creative abilities as

*The procedure for computing total creativity scores for a subject included conversion of row scores for the different dimensions of creativity such as fluency, flexibility, originality, etc. into t-scores and then adding up these standard scores as recommended by Torrance (1966, p. 71).

possible. The creativity tasks thus selected for the present study included (i) product improvement, (ii) unusual uses, (iii) unusual questions, and (iv) just suppose form, the verbal form, (v) picture completion, and (vi) from the figural form (Torrance 1966).

In order to assess the personality adjustment of his subject, the investigator used the California test of personality (CTP) adult form AA (Thorpe *et al.* 1953). This instrument consists of 180 items which are to be answered in 'yes' or 'no'. It is divided into two parts, one measuring 'personal adjustment' and the other 'social adjustment'. In all, this instrument provides 15 scores as follows: self-reliance (SRL), sense of personal worth (SPW), sense of personal freedom (SPF), feeling of belonging (FBG), withdrawing tendencies (WTD), nervous symptoms (NSP), total personal adjustment (PAD), social standards (STD), social skill (SKL), anti-social tendencies (AST), family relations (FRN), occupation relations (ORN), community relations (CRN), total social adjustment (SAD), total personality adjustment (TAD).

Treatment of Data

Means, standard errors and SDs for scores obtained by the creative and non-creative groups on the above 15 dimensions of the CTP were computed. The t-test was employed to find out the significance of difference between the means of the two groups on these dimensions. The level of significance (0.05) was chosen as the cut-off point for accepting or rejecting the hypothesis.

Results and Discussion

The Table summarizes the results of the present study. It appears from the data that out of the 15 sub-scales of the CTP the two groups differ significantly from each other only on two sub-scales. These are senses of personal freedom (SPF) and social standards (STD) on both of which the mean is in favour of the creative group. According to the test manual of the CTP (Thorpe *et al.* 1953) an "individual enjoys a sense of personal freedom when he is permitted to have a reasonable share in the determination of his conduct and in setting the general policies that shall govern his life. Desirable freedom includes permission to choose one's friends and to have at least a little spending money (p.3)". About social standards the manual reads: "The individual who recognizes desirable social standards is the one who has come to understand the rights of others and

PERSONALITY ADJUSTMENT OF STUDENT-TEACHERS

who appreciates the necessity of subordinating certain desires to the needs of the group. Such an individual understands what is regarded as being right or wrong (p 3)" The results of the present investigation seem to suggest that high creativity among student-teachers goes along with enjoying adequate freedom in various matters related to one's own life. The results also seem to indicate that creative student-teachers are socially conscious persons. Such a picture is consonant with the earlier findings that highly creative persons are characterized by such traits as independence in judgement, independence in thinking, self-confidence, self-sufficiency, and awareness of others (Torrance 1969, pp. 66-67)

TABLE

SIGNIFICANCE OF DIFFERENCE BETWEEN MEANS OF DIFFERENT ADJUSTMENT SCORES FOR CREATIVE AND NON-CREATIVE GROUPS

Sub-Scale of the CTP		Creative group (N=88)*			Non-creative group (N=89)			t-ratio
		Mean	SD	SE M	Mean	SD	SE M	
1.	SRL	10.14	2.51	0.26	9.69	2.43	0.25	1.25
2.	SPW	10.26	2.78	0.29	9.96	3.13	0.33	0.68
3.	SPF	11.29	2.80	0.29	10.43	3.17	0.33	1.99**
4.	FBG	10.45	3.18	0.33	10.12	3.39	0.35	0.69
5.	WTD	10.37	2.94	0.31	10.62	3.15	0.33	0.56
6.	NSP	9.39	2.12	0.22	9.03	1.84	0.19	1.24
7.	STD	10.09	2.33	0.24	9.15	2.52	0.26	2.69***
8.	SKL	8.54	2.60	0.27	8.88	2.90	0.30	0.85
9.	AST	10.52	3.44	0.36	10.35	3.51	0.37	0.33
10.	FRN	9.95	3.09	0.33	9.04	3.24	0.34	1.94
11.	ORN	8.00	2.77	0.29	8.23	2.59	0.27	0.58
12.	CRN	7.77	2.39	0.25	7.84	2.45	0.26	0.19
13.	PAD	62.48	12.42	1.32	59.89	13.79	1.46	1.31
14.	SAD	54.32	9.58	1.02	53.51	10.72	1.13	0.53
15.	TAD	116.81	20.65	2.20	113.34	23.02	2.44	1.06

*One subject was omitted from the sample of 89 creatives because he/she failed to furnish complete data on the California Test of Personality

**Significant at the .05 level

***Significant at the .01 level

Although not statistically significant some other trends in the data are also noteworthy. First of these, for example, is the higher mean score obtained by the creative group on the self-reliance (SRL) scale of the CTP (t-ratio, 1.25). Keeping in view the description of a self-reliant person as one whose "over-t actions indicate that he can do things, independently of others, depend upon himself in various situations, and direct his own activities (Thorpe *et al* 1953, p 3)", this trend is not only consistent with

the description of highly creative persons as independent in thinking and action but also it seems to support the finding of the present study that the highly creative student-teachers showed significantly greater sense of personal freedom than the low creative student-teachers. Indeed, unless one has a high sense of personal freedom one cannot think or act independently.

The second important trend is a marked difference between the mean scores of creative and non-creative groups (t -ratio, 1.24) for the nervous symptom sub-scale of the CTP, and this difference is again in favour of the creative group. According to the test manual the "individual who is classified as having nervous symptoms is one who suffers from one or more of a variety of physical symptoms such as loss of appetite, frequent eye strain, inability to sleep, or a tendency to be chronically tired. People of this kind may be exhibiting physical expressions of emotional conflicts (p.3)". As such, the data are in harmony with the findings that high creativity is associated with ill-health (Raskin 1936), poor vision (Schaefer 1970) and similar symptoms.

The third trend, perhaps more important than the previous two, is that the difference between the mean scores of the two groups on the family relations sub-scale almost touches the .05 level of significance (t -ratio 1.94) in favour of the creative group. The test manual describes the individual having desirable family relationships as "one who feels that he is loved and well treated at home, and who has a sense of security and self-respect in connection with the various members of his family. Superior family relations also include parental control that is neither too strict nor too lenient (p.4)". Keeping in view such a description of high scores on this sub-scale, the above trend in the data seems to be congruent with the studies which have reported that the parents of high creative subjects 'show unusual respect for them as individuals grant them considerable autonomy' and 'show a high level of tolerance and low level of control' (See Lytton 1971, pp 69-70).

In addition to the above, the creative and non-creative groups show marked differences in the total and personal adjustment scores also and again the balance leans towards the creative group. The t -ratios for the two scores reach 1.06 and 1.31, respectively. On the rest of the scores the two groups do not seem to indicate any remarkable variation from each other.

Thus, taken as a whole, the evidence of the present study weighs against the studies which have reported that highly creative individuals are maladjusted personalities (e.g. Barron 1969). On the other hand, the present study supports the investigations by Blatt (See Parnes 1971), Walberg (1969)

and others which indicate that high creativity goes along with good adjustment.

As regards the decision on the hypothesis of this study, the results indicate that the hypothesis cannot be accepted in the form it is stated (i.e. creative student-teachers are significantly higher than the non-creative student-teachers on mean scores for the different dimensions of personality adjustment). There might not be any real difference between the two groups in terms of other components of the CTP but there seems to be a definite difference between these groups in terms of the 'sense of personal freedom' and 'social standards' sub-scales of this instrument on both of which the creatives have scored significantly higher than the non-creatives as hypothesized.

References

- Barron, F. Creative person and creative process. Holt, Rinehart and Winston, 1969
- Basu, C.K. and Jawa, S.A. Factor analytic study of the Torrance tests of creative thinking. *Creativity Newsletter*, 1973, 2(2), 21-26
- Cox, C.M. *Genetic studies of genius*, Vol. II : *The early mental traits of three hundred geniuses*. Stanford University Press, 1926
- Ellis, H. *A study of British genius*. Hurst and Blackett, 1904
- Kneller, G.F. *The art and science of creativity*. Holt, Rinehart and Winston, 1965
- Lytton, H. *Creativity and education*. Routledge and Kegan Paul, 1971
- Parnes, S.J. Creativity : Developing human potential. *Journal of Creative Behavior*, 1971, 5(1), 19-36
- Raskin, E. Comparison of scientific and literary ability. A biographical study of eminent scientists and men of letters of the nineteenth century. *Journal of Abnormal and Social Psychology*, 1936, 31, 20-35
- Schaefer, C. E. A psychological study of ten exceptionally creative adolescent girls. *Exceptional Children*, 1970, 36, 431-441
- Thorpe, L.P., Clark, W.W. and Tiegs, E.W. *Manual for the California test of personality*. California Test Bureau, 1953
- Torrance, E. P. *Torrance tests of creative thinking - Norms technical manual*, Research Edition. Personnel Press, 1966
- Walberg, H. J. A portrait of the artist and scientist as young men. *Exceptional Children*, 1969, 36, 5-11 □

Modelling in Teacher Training

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An attempt has been made in this paper to review the researches conducted with modelling as a variable. The important findings of research are compiled to help in the development of models in teacher training programmes.

THE TEACHER TRAINING programmes are getting reshaped as the concept of teaching is growing. The traditional programmes accepted the global concept of teaching. The trainee was asked to observe a 'master teacher' performing a 'demonstration teaching' with an idea that he would have imbibed all the 'good points' of the teaching process which were supposed to be demonstrated by the 'master teacher'. In the recent times, one may find that teaching is considered to be a composite of various teaching skills. The training programmes based on this concept attempt to analyse the skills and the trainee is exposed to one skill at a time. All teacher training programmes, whether traditional or modern, are based upon the following assumptions :

1. Behaviour can be modified; and
2. Model provides goal and direction for behaviour modification.

The implications of these assumptions are that teacher-trainers are aware about the concept and functions of modelling. Two definitions of modelling are quoted to make it clear what the term conveys in teacher training programmes. Allen and Ryan (1969) refer to modelling as "an individual demonstrating particular behaviour patterns which the trainee learns through imitation". In the words of White (1972), "The term model is used to mean a teaching episode done by an experienced teacher in which a highly focused teaching behavior is demonstrated". The principle behind the technique of modelling is explained by Bandura (1969) as follows "research conducted within the framework of social-learning theory . . demonstrates that virtually all learning phenomena resulting

from direct experiences can occur on a vicarious basis through observation of other persons' behaviour and its consequences for them".

Vicarious phenomena are generally subsumed under a variety of terms. Among those in common usage are 'modelling', 'imitation', 'observational learning', 'identification', 'copying', 'vicarious learning', 'social facilitation', 'contagion', and 'role playing'. This makes it explicit that modelling brings out learning through imitation.

Researches with modelling as a variable do show a positive support for its use as a technique in teacher training. Koian (1969) reports that film-mediated models* effectively teach teachers to ask observation-classification questions (quoted in Koian 1972). In the study by Fitzgerald (1971), the pre-service teachers who received instruction through perceptual modelling of the ten categories of a modified Flanders' interaction analysis system (FIAS) presented via videotape and discussion moved significantly more towards the criterion behaviours than the pre-service teachers who received instruction through discussion and other verbal means only concerning the concepts of the modified FIAS. Brusling (1972) got some support, though meagre, for the hypothesis which stated: "Observing videotaped models will result in more non-verbal behavior and more pupil talk than not observing such models". Goodwin's (1972) study revealed that modelling did significantly raise the probe quotients of the teacher interns who received it. White (1972) found that pre-service teachers exposed to models of teaching episodes that demonstrated a high degree of indirect verbal interaction were significantly more indirect in teaching than the control group. The model developed by Guffy (1972) was found to be effective in enhancing the ability of pre-service elementary teachers to ask open-ended questions. In the study by McCann (1976) the training programme incorporating the model having an audiotape with typed transcript was more effective in improving the use of verbal skills than the programme without any models.

Silverston and Derchmann (1974) referring to Bandura (1969) indicate that in terms of efficiency and time utilization, modelling is probably the more effective technique than other behaviour-shaping procedures like microteaching, video and audiotape feedback, and in-process prompting. A supporting evidence to this statement can be sought from the studies of Claus (1969) and Rutherford (1973). The study of Claus (1969) attempted to find out the effects of modelling and feedback variables on higher-order questioning skills. The study concluded that in the acquisition of a complex teaching skill, observational learning with cueing was more effective

*The different types of models are dealt with later in the discussion.

than feedback, with or without cueing, in producing desired behaviour change. The study of Rutherford (1973), which investigated the differential effects of model and feedback videotape interventions on teacher's positive feedback responses on children's behaviour, concluded that modelling, either singly or in combination with feedback, have a significant effect upon increasing the criterion behaviour. The 'feedback only condition', on the other hand, was not effective in significantly changing teacher behaviours.

Having accepted that modelling is one of the strong variables to be kept in mind in teacher training, the next question would be to know what type of a model would be more effective. Recent developments in teacher training have seen different types and variations in modelling. In a broad classification models can be grouped as (i) perceptual, and (ii) symbolic. The perceptual modelling can be referred to as a technique where the desired behaviour is exposed through live, film, videotape or audiotape means. The symbolic modelling refers to the situation where the desired behaviour is exposed through written means. In terms of realistic quality, live modelling stands highest with written modelling occupying the bottom position if one arranges the different types of modelling in the order of live, film, videotape, audiotape and written models. But live modelling is unpredictable in its depicting the desired behaviour successfully and the other models once made satisfactory by repeated trials can be preserved for any number of successive uses. Each type of model has got its own value in terms of seeking motivation drawing attention to the salient behaviours, ease of comprehension of the trainee, usability in terms of the skill under question, ease of use in the different situational set-ups, cost and such other points. Whatever may be the type, it is for the teacher trainer to decide whether the model should be a piece of 'real teaching' or a version to exaggerate the different aspects of the desired teaching skill.

Developing models involves three main stages, viz. analysis of a particular skill, identification of the key elements in it, and exposition of the elements in such a way as to satisfactorily exemplify the skill under consideration. Probably, it is a useful hint for a model developer to note what Koran, Korian and McDonald (1972) indicate that models depicting both teacher-student behaviour and 'student only behaviour' appear more effective than those depicting the 'teacher only behaviour'.

When all conditions being equal, the teacher-trainer may wonder which of the models would be more effective. Though not any decisive conclusions can be drawn at the present state of research evidences, some of the following findings may be useful for a suitable choice to be made according to the different circumstances.

1. Whereas Allen, *et al* (1967) found no significant difference bet-

ween the perceptual and written modelling procedures, the studies by Koran (1969) and Oime (1966) reported the superiority of perceptual modelling to the written modelling. In contrast to this, Galassi and others (1974) found that written modelling was at least as effective as perceptual (videotape) modelling, and in a few comparisons, it was superior.

2. The compilation of research results by Koran (1972) indicates:

- (i) Film-mediated models are as effective as live models in accelerating the learning process (Bandura, Ross and Ross 1966).
- (ii) Film-mediated models appear to be superior to written models on tasks of reinforcement, probing, and higher order questions (McDonald and Allen, 1967), and analytic questions (Koran, Snow and McDonald 1971).

3. Vaze (1975) found that audio models are better when compared to symbolic models in developing the skills in questioning

4. Modelling with cues are more effective in training teachers to use higher-order questions than non-cued modelling (Claus 1969).

5. Sex does not appear to have any effect as a variable in a model (Bickel 1971).

6. It is more effective to have positive instances of the behaviour rather than mixed or negative instances to be demonstrated in the model (Berliner 1969, Koran, Koran and McDonald 1972).

Any one who would like to develop and use models in the training of teachers may get feelers from the above discussions. The decision lies on the available resources, criterion skill and time at hand. To say finally, in terms of Bandura (1969) :

Since modelling phenomena are controlled by several interrelated sub-processes, the absence of modelling effects in any given case may result from either failures in sensory registration due to inadequate attention to relevant social cues, deficient symbolic coding of modelled events into functional mediators of overt behavior, retention decrements, motor deficiencies, or unfavourable conditions of reinforcement.

The teacher training programmes are identifying various types of instructional skills, different types of training situations, and are employing different types of software and hardware. The implication of these developments is a thorough understanding of the phenomenon of modelling. It demands a serious attention of teacher-educators and educational researchers.

References

- Allen, D.W., Berliner, D. O., McDonald, F. J., Sobol, I. T. A comparison of different modeling procedures in the acquisition of a teaching skill. Paper presented at the meeting of the American Educational Research Association, New York, 1967
- Allen, D. and Ryan, K. *Microteaching*. Reading, Massachusetts: Addison-Wesley, 1969
- Bandura, A. *Principles of behavior modification*. New York: Holt, Rinehart and Winston, Inc., 1969
- , Ross, D. and Ross, S. Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology*, Vol. 66, 1966, pp 3-11
- Berliner, D. Microteaching and the technical skills approach to teacher training. Technical Report No. 8, Stanford Center for Research and Development in Teaching, Stanford, California, 1969
- Bickel, F. C. The effects of sex and age as variables in a microteaching modelling procedure. *Dissertation Abstracts International*, Vol. 32A, No. 2, August 1971, pp. 815A-816A
- Brustling, C. Effects of cued modelling procedures and self-confrontation in a microteaching setting aimed at developing non-verbal behavior. Paper presented at the International Microteaching Symposium, Universitat Tubingen, West Germany, 10-16 April 1972
- Claus, K.E.S. The effects of modelling and feedback variables on higher-order questioning skills. *Dissertation Abstracts International*, Vol. 29A, No. 7, January 1969, p 2133-A
- Fitzgerald, Jr., R.G. The effect of video-taped modelling procedures on the verbal behaviors of student teachers. *Dissertation Abstracts International*, Vol. 31A, No. 8, Feb 1971, pp 4002A-4003A
- Galassi, J.P., Gall, M.D., Dunning, B. and Banks, H. The use of written versus videotape instruction to train teachers in questioning skills. *The Journal of Experimental Education*, Vol. 43, No. 2, Winter 1974, pp. 16-23
- Goodwin, Jr., W.E. The relative effects of symbolic and symbolic-live modelling on the probing questioning behaviors of selected teacher interns. *Dissertation Abstracts International*, Vol. 32A, No. 7, January 1972, p. 3838-A
- Guffy, Jr., N.T. The effect of a symbolic and perceptual model on the development of asking open-ended questions in pre-service elementary teachers. *Dissertation Abstracts International*, Vol. 33A, No. 2, August 1972, p. 646-A
- Koran, Jr., J.J. the relative effects of classroom instruction and subsequent observational learning on the acquisition of a questioning behavior by science teachers. *Journal of Research in Science Teaching*, Vol. 6, No. 3, 1969
- Korn, M.L. The effects of individual differences on observational learning in the acquisition of a teaching skill. Unpublished doctoral dissertation, Stanford University, 1969
- Korn, Jr., J. J. The use of modelling, feedback and practice variables to influence science teacher behaviour. *Science Education*, Vol. 56, No. 3, September 1972, pp. 285-91
- , Jr., J.J., Koran, M.L. and McDonald, F.J. The effects of different sources of positive and negative information on observational learning of a teaching skill. *Journal of Educational Psychology*, Vol. 63, No. 5, 1972, pp. 405-410

- Koran, M.L., Snow, R.E. and McDonald, F.J. Teacher aptitude and observational learning of a teaching skill. *Journal of Educational Psychology*, Vol. 6, No. 3, 1971, pp. 219-228
- McCann, R.L. An analysis of the effectiveness of symbolic modelling in a minicourse/microteaching training programme on the questioning ability of preservice elementary teachers. *Dissertation Abstracts International*, Vol. 36A, No. 9, March 1976, p. 6020A
- McDonald, F.J. and Allen, D.W. Training effects of feedback and modeling procedures on teaching performance. *USOE Project No. 6-10-078*, School of Education Stanford University, 1967
- Orme, M.E. The effects of Modelling and feedback variables on the acquisition of a complex teaching strategy. Unpublished doctoral dissertation, Stanford University, 1966
- Rutherford, Jr., R.B. The effects of a model videotape and feedback videotapes on the teaching styles of teachers in training *The Journal of Experimental Education*, Vol. 42, No. 1, Fall 1973, pp. 64-69
- Sadker, M. and Cooper, J.M. What do we know about microteaching ? *Educational Leadership*, Vol. 29, No. 6, March 1972, pp. 547-551
- Silverston, R.A. and Deichmann, J.W. Modelling as an important technique in teacher training. *Kappa Delta Pi Record*, Vol. 11, No. 1, Oct. 1974, pp. 24-25
- Vaze, N.A. Effects of modelling and microteaching in the acquisition of certain skills in questioning. Unpublished doctoral dissertation, M.S. University of Baroda, Baroda, India, 1975
- White, F.J. Observational learning of indirect verbal behavior through the medium of audio-tapes. *The Journal of Educational Research*, Vol. 65, No. 9, May-June 1972, pp. 417-419 □

Ph.D. Theses Abstracts

Classroom Interaction and Cognitive Development in Primary School Children

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THE OBJECTIVES of this investigation were (i) to ascertain the level of cognitive development in primary school children, (ii) to ascertain how schools differ in the classroom interaction/instructional strategies, and (iii) to know the influence of classroom interaction and cognitive development of children.

The study of the abilities of children for developmental trends is incomplete if it is looking for age variations alone; so the need exists to relate the abilities with environmental variables (religion, caste, income, material possession), parental and family variables (father's education, father's occupation, mother's education and family size), and leisure activity. All these variables are in addition to the personality variables (sex and age) which speak of developmental perspective and school variables (grade, type and quality of school) which speak of classroom interaction.

Of the many cognitive processes, perceptual activities—reorganization (figure-ground reversal) and schematization (part-whole integration), and spatial orientation (topological space, projective space and Euclidean space) were undertaken for studying the cognitive development. The theoretical premises for both spring from Piaget's theory. Spatial orientation was selected for studying children's cognitive development.

Methodology

The sample of this study was drawn from the children of Classes IV-V since by this time it is believed conceptually that they have attained concrete

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operational stage. A small number of children from Class I were taken for comparison purposes. As the major objective being the assessment of schools for varying classroom interactions and since structurally too there are different types of schools the following types of schools were selected for the study purpose : (i) government schools—rural and urban, (ii) private schools, (iii) aided schools, (iv) central schools, and (v) Montessori schools. It may be assumed that these schools cater to the needs of various strata of society, i.e. government schools serve poor, aided schools serve middle classes, and central schools, run on public school lines, cater to the middle and upper classes. Montessori schools, on the other hand, differ from all the above types of schools in the method of instruction. Thus, these different types of schools which were involved in the investigation have differences in function. It was assumed that such differences would reflect in the learning and development of children, particularly for cognitive outcomes.

Summary of Findings and Conclusions

The factor analysis (varimax rotation) has indicated that various activities and orientations that go with perceptual activities (decentration measures : reorganization and schematization) and spatial orientation (topological, projective and Euclidean dimensions) were independent of each other. Thus, reorganization, schematization emerged as independent factors without any association whatsoever with spatial orientation dimension. At the same time all the three dimensions of space were with perceptual comparison factor. Thus, the study did not support the hypothesis that, 'If perceptual activities are the basis for the later emerging intellectual operations, i.e. spatial concepts, then there will be an inter-association between reorganization, schematization and topological, projective, and Euclidean space dimensions. Hence it may be concluded that both perceptual activities and cognitive operations (spatial orientation) emerge independently and are not associated with each other. This finding supports the contention of Piaget that perceptual activities are only isomorphic with cognition and not similar to it.

It was hypothesized that, 'if the concept attainment follows a sequence from concrete to abstract, the qualitative topological features emerge earlier than metrical projective and Euclidean space'. The results indicated that emergence of space operations is in the envisaged order. Hence it may be concluded that children at lower ages were familiar with topological space operation and with increase in age were acquiring the next operations, projective and Euclidean.

The third of the hypotheses dealt with the cross-cultural variation in perceptual and cognitive development. (i) The study had demonstrated the predicted age related increase in perceptual decentration or perceptual activity of reorganization when younger children were more figure oriented, older children were ground oriented. This is in tune with the findings on Western culture. (ii) However, for schematization the findings exhibited a different condition, while Western sample exhibited a developmental trend of part to parts and wholes to part-whole perception the study's sample exhibited a trend of whole to parts and to part-whole perception. Hence it may be concluded that our children at younger ages were more figure oriented and whole oriented, and at older ages, they were more ground oriented and parts and part-whole oriented.

On the spatial orientation on the other hand, the study revealed that the emergence of stages of development of space orientation is the same; the only difference being the onset of the operations, being delayed as was with the sample of the study.

Nowhere our children were comparable to Swiss children (Piaget's sample). However, on topological orientation to some extent they were nearer to White children (de Lemos' sample) in achievement. With projective and Euclidean space dimension even 12-year-olds did not achieve clearly these dimensions, when the same were achieved by Swiss and White children of 7 years (projective space), 8.5 to 12-year-olds (Euclidean space). Our sample's achievement was equal to that of Zulu children.

In other words, the contention of Piaget that the sequence of stages for development of cognitive operations is the same for all cultures, the only difference being, in some cultures the onset of an operation may be delayed or may even appear earlier has been proved correct in the present study. Hence it may be concluded that the study has supported the sequential stage development of cognitive operations.

Within the Indian culture, it was contended in the fourth hypothesis, if there is homogeneity then children belonging to different sexes, religions, castes, income levels, etc would attain the same levels of competence across different tasks of perceptual and spatial orientation. However, the study revealed differences in performance of children of varied backgrounds, of which sex differences, differences due to religion, caste, family, income, parents' education (both father and mother), parents' occupation, leisure activity were prominent. Hence, the implied null hypothesis in the above contention is rejected and alternatively it is concluded that children's achievements over perceptual activities and cognitive operations are based on their respective backgrounds like sex, religion, caste, income, parents' education, occupation and leisure activity

The final hypothesis tested in the investigation had to do with schools in general and classroom interaction in particular. In this hypothesis the contention was, when schools in the society around us are not different in their functioning, then their objective outcomes, i.e. level of students' attainment in cognitive and affective domains would not differ too. The basic premise of this hypothesis was that the schools around us in fact do differ in both physical resources and student composition. Thus although the content to be taught is the same, due to the differences in physical amenities, and variations in factors like motivation, classroom organization, assessment, instructional strategies, children's achievement are affected. The better equipped and highly organized, motivated, systematic classroom instruction of central, private and montessori schools provide better opportunities to children in acquiring the maturity in cognitive and affective domains. The findings of the investigation support this contention when children of only central schools have shown consistent success over the perceptual activity and spatial orientation tasks. Government school children, that too rural-based, were lagging much behind. With this it may be concluded that schools differed in their classroom interactions which effected or affected adversely the attainment of perceptual and cognitive skills.

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A Study of Interest and Personality Patterns of Successful Men in Different Occupations

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THE IMPORTANCE of knowing personality and interest patterns of people for different occupations has been widely felt since long as these factors go to help a good deal at the time of employing and placing people in different occupations. Attempts to measure both general adjustment and specific traits and to ascertain their significance for vocational success have been made. It has been shown by the surveys of employment records, as Hunt (1936) found that personality problems are most common cause of discharge from employment. Carter (1940) pointed out that interest patterns of adolescents tend to become increasingly practical. The measurement of interest is taken for granted to be as important as the measurement of abilities in vocational guidance and selection. There is need to account for the part of the variance in job success that ability does not measure. Also, tests of ability and interest do not measure personality tests which account for a significant part of vocational adjustment. Thus, it has become an obvious fact that particular occupation may demand from its employees personality and interest patterns which are quite different from those demanded in another occupations.

From the review of the studies, as compiled by the investigator, one can see that there is a need to determine interest and personality patterns of engineers, doctors and college teachers who have attained success at different levels in their vocations. This study obviously is an attempt in this direction.

Objectives of the Present Study

1. To determine the personality patterns of engineers, doctors and college teachers at different levels of success, i.e. excellent, superior, very good and good.

*Thesis submitted to Patna University (1979)

2. To find out the similarities and differences in the personality patterns at different levels of success in the three professional groups separately, i. e. engineers, doctors and college teachers

3. To investigate the similarities and differences between the personality patterns of (a) engineers and doctors, (b) engineers and college teachers, and (c) doctors and college teachers at different levels of success.

4. To determine the personality patterns of engineers, doctors and college teachers (combining all levels of success in each group) and to see the similarities and differences in them.

5. To investigate the interest patterns of engineers, doctors and college teachers at different levels of success, i.e. excellent, superior, very good and good.

6. To find out the relationships between the interest patterns at different levels of success in respect of the three professional groups separately, i.e. engineers, doctors and college teachers.

7. To determine the relationships between the interest patterns of (a) engineers and doctors, (b) engineers and college teachers, and (c) doctors and college teachers at different levels of success.

8. To determine the interest patterns of engineers, doctors and college teachers (combining all levels of success in each group) and to investigate their relationships.

Methodology

A sample of 100 individuals randomly selected from Delhi population in each professional group served as subject for this study. The following tools were used :

1. Employee's performance appraisal by Martin M. Bruce was used to determine the levels of success of engineers, doctors and college teachers.
2. A Hindi adaptation of Kuder preference record vocational form by N. P. Singh was used to study the interest patterns of engineers, doctors and college teachers.
3. A Hindi adaptation of Cattell's 16 P. F. by S. D. Kapoor was used to study the personality of engineers, doctors and college teachers.

To know the interest and personality patterns of different levels of successful engineers, doctors and college teachers and their relationships, the following statistical methods were followed.

1. Arithmetic mean scores of each area of interest and each personality factor were calculated separately for different levels of successful engineers, doctors and college teachers.
2. Mean scores of each area of interest and each personality factor were further converted into percentages in order to reduce them to identical metric for the purposes of ranking. In order to determine the personality and interest patterns of each category of successful engineers, doctors, and college teachers, it was decided to include in the pattern only those personality and interest factors which had received first five ranks.
3. In order to indicate the bipolar nature of each of the 16 personality factors, the scores were measured in terms of their deviations from the median score of 55. For determining the relationships between interest as well as personality patterns of engineers, doctors and college teachers at different levels of success Spearman-Brown correlation coefficients were calculated and their significance tested by t-test.
4. Cluster analysis is often employed when dealing with multiple groups. Although several methods of cluster analysis have been suggested, the procedure adopted here is 'Tryon's modification of Holzinger's method and the application of Harmon's B coefficient.

Summary of Results

1. The personality pattern of engineers in the 'excellent' category constitutes the following predominant factors in rank-order : more intelligent, shrewd, experimenting, self-sufficient and mild and their interest pattern in the following predominant areas in rank-order : scientific, mechanical, social service, outdoor and literary. Similarly, the personality pattern of doctors in the 'excellent' category includes the following factors in rank-order : conscientious, shrewd, outgoing, more intelligent and experimenting and their interest pattern in the following predominant areas in rank-order : social service, scientific, outdoor, artistic and persuasive. Likewise, the personality pattern of college teachers in the 'excellent' category comprises the following predominant factors in rank-order : conscientious, emotionally stable, controlled, outgoing and more intelligent and their interest pattern in the following predominant areas in rank-order : literary, social service, outdoor, artistic and scientific.

2. The personality pattern of 'superior' engineers comprises the following predominant factors in rank-order : conscientious, more intelligent, shrewd, self-sufficient and venturesome and their interest pattern in the

following predominant areas in rank-order : mechanical, social-service, scientific, outdoor and computational. In the same manner, the personality pattern of 'superior' doctors includes the following predominant factors in rank-order : controlled, experimenting, more intelligent, conscientious and assertive and their interest pattern in the following predominant areas in rank-order : scientific, social service, outdoor, artistic and literary. The personality pattern of 'superior' college teachers constitutes the following predominant factors in rank-order : conscientious, controlled, emotionally stable, shrewd and more intelligent and their interest pattern in the following predominant areas in rank-order : literary, artistic, outdoor, social service and scientific.

3. The personality pattern of 'very good' engineers comprises the following predominant factors in rank-order : conscientious, shrewd, more intelligent, emotionally stable and self-sufficient and their interest pattern in the following predominant areas in rank-order : scientific, mechanical, artistic, outdoor and social service. Likewise, the personality pattern of 'very good' doctors includes the following predominant factors in rank-order : controlled, conscientious, emotionally stable, shrewd and conservative and their interest pattern in the following predominant areas in rank-order : social service, scientific, literary, artistic and musical. Similarly, the personality pattern of 'very good' college teachers comprised the following rank-order : conscientious, experimenting, more intelligent, venturesome and emotionally stable and their interest pattern in the following predominant areas in rank-order : social service, outdoor, literary, scientific and artistic.

4. The personality pattern of engineers in the 'good' category comprised the following predominant factors in rank-order : conscientious, controlled, self-opinionated, tender-minded and emotionally stable and their interest pattern in the following predominant areas in rank-order : social service, artistic, outdoor, literary and scientific. Likewise, the personality pattern of the doctors in the 'good' category includes the following predominant factors in rank-order : tender-minded, careless about protocol, relaxed, expedient and sentimental, and their interest pattern in the following predominant areas in rank-order : artistic, musical, social service, literary and scientific. The personality pattern of college teachers in the 'good' category constitute the following predominant factors in rank-order : experimenting, practical, relaxed, tough-minded, and expedient and their interest pattern in the following predominant areas in rank-order : artistic, social service, computational, outdoor and musical.

5 The personality pattern of engineers (combining all the four levels

of success) constitutes the following predominant factors in rank-order : conscientious, more intelligent, controlled, self-sufficient and venturesome and their interest pattern in the following predominant areas in rank-order, social service, mechanical, scientific, outdoor and artistic. Similarly, the personality pattern of doctors (combining the four levels of success) includes the following predominant factors in rank order : more intelligent, controlled, conscientious, shrewd and emotionally stable and their interest pattern in the following predominant areas in rank-order : scientific, social service, artistic, literary and outdoor. Likewise, the personality pattern of college teachers (combining the four levels of success) includes the following predominant factors in rank-order : conscientious, emotionally stable, controlled, tender-minded and more intelligent and their interest pattern in the following predominant areas in rank-order : social service, literary, outdoor, artistic and scientific.

6. The clusters of personality factors of engineers are : (i) venturesome, apprehensive, experimenting and happy-go-lucky, (ii) shrewd and self-sufficient, and (iii) imaginative and conscientious. Their clusters of interest areas are : (i) mechanical, scientific and artistic, and (ii) clerical, literary and musical. Likewise, the clusters of personality factors of doctors are : (i) venturesome, experimenting and tense, and (ii) tender-minded, shrewd and self-sufficient. Their clusters of interest areas are : (i) social, scientific and persuasive, and (ii) clerical and artistic. Similarly, the clusters of personality factors of college teachers are : (i) conscientious, happy-go-lucky, tender-minded, experimenting and controlled, (ii) shrewd, self-sufficient and tense, and (iii) assertive, venturesome, and imaginative and their clusters of interest areas are : (i) artistic, scientific, literary and musical, and (ii) persuasive and clerical.

The findings of the study may help the school counsellors for rendering guidance services to the school-leavers for the future courses of studies in engineering, medicine and teaching to be undertaken by them. This may also help the professional institutions in selecting the students to these three professional educational streams at the end of their school final stage. This may also serve as an aid to governmental and other agencies in formulating criteria for selecting efficient personnel in these three professions. Further, the present researcher hopes to undertake another study in this area on a bigger sample to investigate other relevant factors.



A Study of Some Teacher Variables and Teaching Methods Associated with Learning Outcomes in Biology

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BIOLOGY is an important branch of science which permits travel in the domain of living things. The development of biology and biology education in school, for example, electronic microscopy, molecular biology, bionics and control of diseases, lead to a number of requirements in the teaching of biology in secondary schools. Every cultured man should not only understand general laws of biology but should also know how to think correctly and broadly to live up to those biological principles. Biology education helps to shape a modern and scientific outlook of the world.

The teacher is ultimately responsible for deciding their own classroom objectives and for the attainment of these learning outcomes. Accordingly she chooses her material and method. Maul (1953), Fitzpatrick (1960) and Brandwein (1955) also felt that the teacher has the final responsibility of determining educational objectives and selecting tools to achieve the desired learning outcomes. To bring about desired learning outcomes, the teacher has to plan, select material and method and guide the class.

The Problem

Now the problem is that of the identification of the teacher factors in relation to learning outcomes. Many studies have been done to find out teacher factors present in the effective, competent, or successful teachers, but due to non-agreement of the concepts of these terms not much has been done towards the formulation of theories on teaching and analysing the components of successful biology teachers.

The purposes of this study were : (i) to determine what selected teacher variables have a significant relationship with the attainment of specific learning outcomes by students, and (ii) to determine what teaching methods or combinations of methods have a significant relationship with the attainment of the specific learning outcomes by students. These two basic

problems were divided into several sub-problems for analysis. The null hypotheses were :

1. Selected teacher factors are not related to students' gains in knowledge of biological facts, concepts and principles.
2. Selected teacher factors are not related to students' gains in understanding of biological concepts and principles.
3. Selected teacher factors are not related to students' gains in application, that is, solving unfamiliar problems related to acquired biological facts and principles.
4. Selected teacher factors are not related to the development of students' understanding of science.
5. Selected teaching methods or combinations of methods are not related to students' gains in knowledge of biological facts, concepts and principles.
6. Selected teaching methods or combinations of methods are not related to students' gains in understanding of biological concepts and principles.
7. Selected teaching methods or combinations of methods are not related to students' gains in application.
8. Selected teaching methods or combinations of methods are not related to the development of students' understanding of scientists, scientific enterprise and aims and methods of science.

Need of the Study

There has been an increasing awareness for ameliorating science education for higher secondary school biology students in Rajasthan. Rajasthan is a state where innovative practice in the field of education find important place. The Board of Secondary Education, Rajasthan, has identified cognitive and non-cognitive learning objectives in biology for higher secondary school classes.. These objectives can be attained only if teachers plan effectively.

At present the teacher education programme has insufficient evidence to guide the formulation of needed teacher training and in-service teacher education programme. Teacher factors related to specific learning outcomes in biology have not been identified. Methods which develop these outcomes have also not been clearly identified. The process of education toward desired objective is believed to be influenced by factors resident in the teacher, the pupil, and the school environment, by selected learning materials and procedures, and, by the interaction of these factors in the

learning process. Specific factors which influence the learning process need to be identified in order to improve biology teaching.

Procedure

Schools were randomly selected from a stratified list of 65 urban schools having biology, in Rajasthan. One teacher and one class were selected from each school to participate in the study. One class was randomly selected in the schools, where there were many biology sections in Class XI. Data from the various answer-sheets were tabulated on the data sheets. The selected teacher factors were investigated for significant relationships to learning outcomes, utilizing the analysis of covariance on class means adjusted for general scholastic ability and previous knowledge. Rest of the 19 teacher factors were investigated for significant relationships to learning outcomes, utilizing multiple regression analysis. Teaching methods were analysed for their relationships to learning outcomes by comparing groups of teachers with classes who achieved the highest gains to teachers with classes who achieved the lowest gains. Class gains were determined for each objective by computing the difference between the beginning of school year (July-August 1972) and the end of school year (February 1973) raw scores on the criterion. Gains were tabulated and analysed. High and low groups were established on the basis of students' gains. Depending upon the distribution of the students' gains upper and lower groups were composed of the participating classes.

Multiple regression analysis was computed on 1620 IBM computer at Delhi. Analysis of covariance was computed by using electronic desk calculator. The analysis of covariance was computed by procedure outlined by Pesternack and Charan (1969). Factors significant at 0.5 and 0.01 level of significance were identified. The methods utilized by teachers of upper classes in student gains were analysed and compared to the teachers on the lower classes. Methods or combination of methods which were associated with the greatest gains were identified and described.

Significant Results

1. The gain in knowledge of biological facts, concepts and principles as measured by Nelson biology test was attained by all the classes. This objective was stressed by all the teachers. Teacher factors which were related to this learning outcome were : (i) understanding of science, (ii) affiliation, (iii) deference, (iv) attitude towards teaching, (v) order, (vi) aggression, (vii) dominance, (viii) exhibition, (ix) intraception. These

factors were found to be significant at .01 level. Teacher factor participation in the inservice programme was related to learning outcome knowledge. Students of teachers who attended inservice programmes more than two times did better on this learning outcome than students of teachers who participated less than two times. Relationship was significant at .01 level. Lecture-demonstration combination and laboratory-discussion combination were the best methods to give more knowledge to students and were related to this learning outcome.

2. The gain in understanding of concepts and principles as measured by Nelson biology test was attained by all the classes. Except six teachers, this objective was stressed by all the teachers. Factors significantly related to this learning outcome were : (i) deference, (ii) affiliation, (iii) understanding of science, (iv) attitude towards teaching, and (v) aggression. Teacher factor participation in the in-service programmes was related to learning outcome, understanding of concept and principles. Students of teachers who participated in inservice programmes more than two times did better than the students of teachers who participated less than twice in the in-service, programmes. Relationship was significant at .01 level. Teachers whose class-mean gains were high used mostly free discussion, demonstration-discussion combination and laboratory-discussion combination. The more the students discussed, their understanding of the subject increased.

3. All the classes obtained positive gains in application as measured by Nelson biology test. Four teachers from the high group and ten teachers from the low group did not teach for this objective. Teacher factors related significantly to the learning outcome was deference at .05 level. Those classes who scored high on this learning outcome were given practice in writing laboratory report and teachers used field-trips and project method.

4. All the classes obtained positive gain in total achievement in biology as measured by Nelson biology test. Factors which were related to total achievements were : (i) deference, (ii) affiliation, (iii) understanding of science, (iv) aggression, (v) order, and (vi) dominance. These factors were found to be significant at .05 level. Teacher factor sex (male) was related to total achievement in biology. Relationship was found to be significant at .01 level. Students taught by male teachers scored better than student taught by female teachers. Teacher factor, participation in in-service programmes, was significantly related to total achievement in biology at .01 level. Students of teachers who had participated in in-service programmes more than twice scored better than students of teachers who had participated in in-service programmes less than twice.

5. The gain in understanding of science was attained by all classes,

though low. Ten teachers did not respond to this objective. Twenty-three teachers did not teach to develop this objective. Teacher factors related significantly to this learning outcomes were . (i) understanding of science, and (ii) succorance. But deference, heterosexuality, understanding of science and succorance jointly predict achievement in understanding of science. Those classes who scored high on this learning outcome were taught by demonstration-discussion combination and project method.



The Impact of Constitutional Provisions upon the Uplift of Harijans

S. P. RASTOGI

THE CONSTITUTION OF INDIA is an expression of the India's commitment to democratic socialism. Democratic socialism as a socio-political ideology and strategy of social action, aims at creation of freedom and equality both political and social. Democracy implies freedom and equal protection of the law of the land to all citizens of the country, irrespective of their caste, culture, creed, religion and language. Socialism implies equal opportunities for all-round development of personality. It ensures an equal distribution of income and of opportunities. In this way democratic socialism aims at the creation of a free, egalitarian and open society characterized by open class system based not on ascription but on achievement.

Social problems like poverty, illiteracy, diseases, ignorance and squalor and the unhealthy traditions of caste and casteism have been major obstacles in the way of the establishment of a democratic society. The problems concerning the Harijans are a grave impediment in the realization of a society characterized by freedom, equality and integration.

Various provisions for the uplift of Harijans have been laid down in the Constitution of India and in the laws enacted for protecting them from discrimination and exploitation. Under the constitutional obligation the government of India has launched various schemes and programmes for the all-round development of the Harijan community.

Aim and Objectives of the Present Study

The main aim of the present investigation was to test the following hypothesis : Various constitutional safeguards, facilities, amenities and changes in public opinion have failed to deliver the desired results, and for this there is need of complete overhauling of the entire social structure. The study had the following objectives :

1. To look into the pitiable conditions of Harijans in the past.

*Thesis submitted to Lucknow University (1977)

2. To understand the family size and composition of Harijan students.
3. To know about the economic status and standard of living of Harijan students
4. To probe into the attitudes and beliefs of Harijan students.
5. To evaluate various constitutional safeguards, facilities, amenities and changes that have taken place in public opinion.
6. To find out various problems and difficulties faced by Harijan students.
7. To suggest various ways and means by adopting which Harijan students can be provided proper place in the social set-up

Methodology

The present study was based on both field and documentary sources. Harijan students of Lucknow University who get scholarship constituted the field sources of the present study. Government records and published literature in the form of books, reports, journals, etc. constituted the documentary sources. The researcher made a thorough and deep study of the documentary sources, firstly, with a view to develop the desired tools of the present study and ultimately with a view to corroborate the information collected from field sources. The researcher conducted comprehensive interviews with 300 Harijan students who were the chief source of data collection.

The Universe and the Sample

The universe of the present study was constituted by 1,115 Harijan students studying in the Lucknow University in the academic year 1972-73. A sample of 300 Harijan students was selected from the universe with the help of systematic random sampling method in order to collect the necessary information by interviewing them with the help of an interview schedule.

Main Findings

1. Majority of the respondents were found to be availing of the facility of scholarship at the present level of educational career but the amount of scholarship they have been receiving is very meagre.
2. Socio-cultural depression, social stigma, paucity of time due to economic hardship and social segregation have been the main factors coming in the way of free mixing up of the Harijan respondents with the

caste Hindu students and limited participation in extra-curricular activities.

3. The economic and housing condition of the families of the most of respondents were found to be far from being satisfactory and up to the recognized standards.

4. Most of the respondents have complained of the anti-Harijan feeling which are still cherished by upper caste students.

5. Restrictions were still being imposed on the Harijans (members of the respondent families at their permanent residence) by caste Hindus in regard to the use of various facilities, amenities, services and places.

6. Among all the constitutional provisions made for the all-round development of Harijans, the impact of the provisions of the abolition of untouchability has been the most pronounced.

7. Most of the respondents have utilized the benefits guaranteed to the Harijans in the Constitution of India in the field of education

8. The main reason for non-utilization of benefits guaranteed under the Constitution of India has been the lack of implementation of the provisions and facilities by the government. However, quite a sizeable number of respondents could not utilize the benefits either because of their unawareness or due to their apathy and inaction towards the same.

9. Most of the respondents have considered the facilities provided by the Central and state government either as inadequate or have remained silent on this issue.

10. A fraction of students has shown satisfaction from the facilities provided by Central Government particularly with those existing in the field of education and boarding. The remaining respondents are either dissatisfied or have given no response. All respondents have remained silent with regard to the facilities provided by local self-government because no facilities have so far been made available to them. Consequently, there appears no visible impact of such enabling facilities over the Harijan students

11. Public opinion is not favourable towards the cause of Harijans due to a number of reasons.

12. Among the various reasons given for no change in public opinion, casteism occupies the top place. Law graduates have shown a greater tendency of expressing this reason.

13. Many factors have been held to be responsible for the continuous sub-human standard of living of the Harijans and the most important among these has been held to be the inadequate education.

The following suggestions have been offered by the respondents themselves for making various constitutional safeguards more effective and welfare measures more organized.

1. Conditions attached with different available benefits should be made less stringent
2. Bureaucrats should adopt a more sympathetic attitudes towards Harijans.
3. Special information bureaus should be set up for Harijans
4. Political enlightenment and awareness should be spread among Harijans through mass media of communication
5. Caste names should compulsorily be abolished and inter-caste commensality, connubium and inter-mixing should be encouraged.
6. Economic status of the Harijans should be improved.
7. Number of reserved seats for Harijans in services and educational institutions should be increased.

The following are the main suggestions offered by the researcher .

1. The amount of scholarship should be increased realistically in view of increase in the bare minimum expenses of education.
2. There should be at least 20 per cent reservation for Harijans in all services and vacancies should be filled up through the employment exchanges. Some representatives of Harijans must be included in the panels drawn for selection.
3. All textbooks should be made available to the Harijan students.
4. The number of reserved seats for Harijans in educational institutions should be increased and facilities for free lodging and boarding should be provided to the Harijan students
5. Special free coaching facilities should be provided to Harijan students in all educational institutions.
6. All children of Harijans up to the age of 14 years should compulsorily be sent to schools and should be allowed to get the education in close association with caste Hindu students.
7. Harijan students should be allotted their seats in the hostels by making caste Hindus their room partners, so that their inferiority complex may go.
8. In all the programmes organized in the educational institutions Harijans should be encouraged to participate.
9. Harijan students should be encouraged to participate in various religious functions at a level equal to that of caste Hindus
10. Land declared surplus due to operation of various land ceiling laws should be equally distributed among the Harijans.
11. Harijans should be given the facility of loans at very cheap rate and re-payable in easy instalments, for the purchase of cattle, development of land, etc.

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12. Harijans should be allowed to approach all public places without any fear of humiliation by caste Hindus.
13. Harijans should be given a free approach to various places of worship.
14. Harijans living in slum areas should be provided with accommodation in special colonies developed for them. However, in these colonies caste Hindus should also be allotted accommodation, so as to have the opportunity for interaction between the caste Hindus and Harijans.

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Development of a Battery of Diagnostic Tests in Arithmetic for the Students of Standards V, VI and VII in Gujarati-medium Schools in Greater Bombay

T. M. PATEL

MATHEMATICS is the basis of all sciences and occupies first place in the school curriculum. Unfortunately the standard of achievement in mathematics is deteriorating day by day. It is said to be the toughest of all subjects. An early failure on the part of an average child is misinterpreted by himself and he starts feeling that mathematics is only for a few gifted children and cannot be learned by an average child. He gets unnerved and discouraged and his mind gets prejudiced. This prejudice must be removed and this attitude must be changed. An early detection of the probable causes of the failure and under-achievement is the imperative need of the time. Diagnostic tests have come to our rescue. Just as a modern physician makes use of scientific instruments in making a diagnosis of a physical ailment, the modern teacher should use the diagnostic tests and pinpoint the areas and the nature of difficulties experienced by the pupils. These tests can best be used as a guide in adopting the instruction in the classroom to a wide range of individual differences. Hence, the present study was undertaken.

The Procedure

The study began with analysis of errors of 54, 65 and 45 answer-books of mathematics of annual examination for Standard V, VI and VII respectively. It was followed by analysis of syllabi of mathematics into concepts. The test items were constructed keeping in view the findings of error-analysis. The modern technique of evaluation, viz. multiple-choice test was chosen to minimize the number of items. In all, 15 items for decimal system (Standard V), eight items for simple interest (Standard V), seven items for profit and loss (Standard VI), six items for average (Standard VI), 10 items for brackets (Standard VII) and eight items for square-root (Standard VII) were constructed. General directions for each sub-test as well as specific instructions for each item were prepared. The whole test

* Thesis submitted to University of Bombay (1976)

format for each sub-test as such was set up. Each sub-test was cyclostyled on separate paper.

The pilot-test was administered on 281 pupils of Standards V, VI and VII. The tests were assessed carefully and the number of right responses, wrong responses and not-attempted items were found out. The difficulty value and value of product moment coefficient of correlation were also found out. No item was omitted as each item represented different concepts. The items were rearranged on the basis of the difficulty value, the easy item being on the top and the difficult one at the bottom. The final tests were printed in a separate booklet for each unit. They were administered to 6,190 pupils from 19 schools in Greater Bombay. Pupils were given enough time to complete tests. The booklets were carefully assessed and the number of right responses, wrong responses and not-attempted items were calculated. Each item has been separately interpreted and appropriate remedial measures have been suggested.

This was followed by remedial teaching. Two criteria applied to select the pupils for pre-remedial tests were : (i) low scores in diagnostic tests, and (ii) failure in mathematics in annual examination. The remedial tests were administered on 120 pupils (20 for each unit). The answer-books were assessed and arranged on the basis of achievement, being the child scoring the lowest marks at the top and with the highest marks at the bottom. The first 15 out of 20 (for each unit) were selected for remedial teaching programme. Each child was given a cyclostyled copy of material, specially prepared for the purpose, during the programme which lasted for two weeks with an hour's teaching a day. The post-remedial tests were administered as soon as the remedial teaching was over. The answer-books were assessed and the gain caused by remedial teaching was computed. Then, applying the statistical formulae, the significance of pre- and post-remedial test results were found out.

Findings and Conclusions

The diagnostic tests are constructed to reveal the areas and the nature of difficulties experienced by the pupils while dealing with various arithmetical processes. The study of item analysis brings certain facts to light. The present study helps one to arrive at the following conclusions.

Decimal System

1. The skill of converting the units of measures on ascending and

descending scale is not properly understood. The concept of ascending and descending order is also not understood properly. Some pupils did not know the proper order of the units.

2. The pupils find it difficult to decide the place of decimal point while converting them to higher or lower scale.

3. The order of units are not remembered properly

4. The pupils find it very difficult to compare two units

5. The subtraction of decimals is another area of difficulty. The items involving 'borrowing' were poorly responded. The subtraction of different units, when the two units should be converted into one common unit, also puzzles the children. Some pupils ignore the units and follow the subtraction straightaway

6. The process of multiplication of decimals is poorly digested. The main trouble is to fix the place of decimal points in the product. The pupils make mistakes in calculating the number of digits in the fractional part of the product.

Simple Interest

1. The technical words like simple interest, principal, amount, rate of interest, etc. have been understood satisfactorily.

2. The pupils are able to find simple interest, principal or amount when two out of three elements are given

3. Another concept learnt well by the pupils is to find the simple interest using the formula $I = \frac{PRN}{100}$

4. The relationship between simple interest, principal and amount was understood very poorly.

5. The pupils find it difficult to find number of years when simple interest, principal and rate of interest are given

6. To find the rate of interest, when principal, simple interest and number of years are given, is the other area of difficulty experienced by the pupils. They find it very difficult, especially when the principal is not in complete hundred.

7. The sums based on finding the principal when simple interest, the rate of interest and number of years are given, are found to be the most difficult by the pupils

Profit and Loss

1. The technical words such as profit, loss, cost price, selling price, etc are properly grasped.

2. The relationship between the terms profit, loss, cost price and selling price was also learnt satisfactorily.

3. Some pupils fail to differentiate between profit and loss and commit errors while doing sums based on finding profit or loss.

4. The pupils have not understood clearly that when selling price is greater than cost price, there is profit and when cost price is greater than selling price, there is loss.

5. The pupils fail to realize that the octroi, cartage or coolie charge is treated as a part of cost price.

6. Another area of difficulty is to find cost price, selling price, profit or loss when two out of three elements are given.

7. The pupils also get puzzled when cost price or selling price of an article is given and they are to find out total cost price or total selling price. Some pupils mistake the cost price and selling price of an article for the total cost price or total selling price

Average

1. The pupils are good at finding average of integers.

2. Majority of pupils correctly solved the sums based on finding average of decimals.

3. The other concept understood well is the average of units of measures.

4. In dealing with the sums based on finding average of coins, pupils generally make computational errors.

5. The average of vulgar fractions is the most difficult area from pupils' point of view.

6. The pupils find the addition tough when the fractions have different denominators. The process of reducing fractions to a common denominator is not properly grasped.

7. The pupils make mistakes in cancelling factors common to the numerators and the denominators.

8. The fractions having integers also confuse the pupils. The pupils either fail or commit error in reducing them to improper fractions.

9. The sum of average involves two processes, viz. addition and division. The majority of errors belong to the process of division. The pupils make mistakes in deciding the place of decimal point in the quotient.

Brackets

1. The concept of removing of brackets involving small integers was learnt satisfactorily.

2. The pupils have failed to understand the fundamental characteristic of brackets that they help us to know in what order we should undertake the basic processes.

3. The minus (—) sign before the bracket confuses the pupils.

4. The pupils have not mastered the computational skills of basic process with directed numbers.

5. In dealing with sums having more than one bracket, pupils do not follow the proper order in which they should be removed.

6. The pupils do not know how to collect like algebraic terms. They usually add like and unlike terms together and make mistakes.

7. Another area of difficulty was the sums with algebraic terms.

8. The vulgar fraction seems to be the weakest area.

9. In dealing with the sums involving divisions of vulgar fractions, pupils usually make mistakes in reducing the dividend and the divisor to a common denominator.

Square-root

1. The process of finding square-root of integers is grasped very well.

2. The method of finding square and square-root of decimals is understood fairly.

3. The pupils have not followed the method of deciding the number of digits in the fractional parts of square and square-root.

4. Some pupils mistake square for square-roots and vice versa, especially in the case of decimals.

5. There exists misconception in pupil's mind that the number should be multiplied by 2 to find the square and should be divided by 2 to find the square-root.

6. The square or square-root of algebraic terms is another area of difficulty. They have failed to realize that the coefficient is a part of the algebraic term.

7. The concept of 'index' is also not satisfactorily learnt. They have failed to realize that the index should be multiplied and divided by 2 to find out square and square-root, respectively.



RESEARCH NOTES

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*Degree of Neuroticism : Its Relation with
Intelligence and Creativity*

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EYSENCK'S THEORY of personality factors, viz neuroticism and introversion/extroversion have been widely associated with academic attainment and achievement motive (Lynn and Gorden 1961 and Savage 1962). The authors support Yerkes-Dodson law that optimum level of neuroticism leads towards better attainment whereas high or low degree of neuroticism impairs it (Broadhurst 1957). But during the past two decades the researches conducted by various experts, particularly by Furneaux (1956) and Broadbent (1958) and Ruston (1966), have shown contradictory results when compared with the Yerkes-Dodson law. Furneaux and Broadbent have shown that among postgraduate subjects those who attained a high neurotic score were better academic attainers as compared to low neurotic scorers. On the other hand, Ruston who conducted a similar study on 10 and 11 year subjects found that stable extroverts were better performers than those with a high anxiety score. This reveals that relation between attainment and I-E and N factors may be more complex than the Eysenckian theory. Since Furneaux, Broadbent and Ruston have conducted their studies on subjects with different levels of education and age, it is pertinent that the Eysenckian theory be considered in relation to level of education and age rather than the general attainment.

In view of the studies quoted above, the present investigators considered to study neuroticism as related to intelligence and creativity on a sample of undergraduate subjects.

Procedure

The study was conducted on 150 undergraduate subjects drawn randomly from three different colleges of Srinagar (Kashmir). The average age of the subjects was 18.6 years. Only male subjects were included in the study. Cattell's (1959) culture fair intelligence test scale 3, forms A and B, was used for the measurement of intelligence and Mehdi's (1973) verbal test of creative thinking was used for the assessment of creativity. For neuroticism Eysenck's (1959) MPT was used. The tests were administered strictly according to the instructions as given in the respective manuals.

Results

Correlation coefficients by Pearson product-moment method were computed between neuroticism on the one hand and intelligence and creativity on the other. The findings are shown in Table 1.

TABLE 1
CORRELATION BETWEEN NEUROTICISM,
INTELLIGENCE AND CREATIVITY (N=150)

Variables	r	t
Neuroticism and Intelligence	-.04	.5
Neuroticism and Creativity	-.111	1.39

As an extension of the present study the investigators split the sample of 150 subjects between high and low scorers on the basis of median cut-out points. The median cut-out points in neuroticism, intelligence and creativity are shown in Table 2. The mean and standard deviation of high and low scorers are shown in Table 3.

TABLE 2

(N=150)

Variables	Median
Neuroticism	27.67
Intelligence	93.75
Creativity	143.26

TABLE 3

High Group			Low Group		
<i>Variables</i>	<i>M</i>	<i>Sd</i>	<i>Variables</i>	<i>M</i>	<i>Sd</i>
Neuroticism	34.0	4.14	Neuroticism	20.68	3.66
Intelligence	36.48	4.59	Intelligence	26.32	4.00
Creativity	166.00	22.54	Creativity	125.40	10.35
	N=75			N=75	

Correlation coefficients for high and low groups were computed separately with neuroticism as a constant variable in both the groups. The results are shown in Tables 4 and 5.

TABLE 4
CORRELATION BETWEEN HIGH SCORERS ON
NEUROTICISM, INTELLIGENCE AND CREATIVITY

(N=75)

i. Correlation between high neuroticism and high intelligence	— .208
ii. Correlation between high neuroticism and high creativity	— .028

TABLE 5
CORRELATION BETWEEN LOW SCORERS ON
NEUROTICISM, INTELLIGENCE AND CREATIVITY

(N=75)

i. Correlation between low neuroticism and low intelligence	— .153
ii. Correlation between low neuroticism and low creativity	+ .23

Discussion

In view of the level of education and age of the subjects in the present study, the authors have observed that there is a negative but insignificant correlation between neuroticism and intelligence. The findings are in line with Eysenck's (1957-1960) theory that the 'cognitive aspect' of personality

is independent of 'temperamental aspect' of personality. The mean neurotic score of the subjects in this study is higher than the mean neurotic score of Eysenck's sample, included in this test. Therefore, low attainment of our subjects in intelligence is due to interference of a high level of neuroticism. Rustons' (1966) primary school subjects with an optimum level of neuroticism showed a better scholastic attainments compared to subjects with a high or low degree of neuroticism. Finally, it needs consideration that the relationship of neuroticism with level of attainment at various levels of education should be conducted on longitudinal basis. The correlation between neuroticism and creativity has been found to be negative and insignificant, which may be again due to high neurotic score of our subjects. The present study does not support Dutt *et al.* (1973) findings in which the authors have shown a slight but positive correlation between neuroticism and creativity. The differences could be due to the level of subjects and the tools used for the measurement of creativity. As Lynn (1959) states : "It is becoming increasingly evident that the findings obtained depend on the measuring instrument".

For the high/high and low/low groups, the findings reveal that high neuroticism and high intelligence have a negative and insignificant correlation ($r = -.028$). Between high neuroticism and high creativity the correlation is again negative and insignificant ($r = -.028$). These findings go in line with Yerkes-Dodson law (Broadhurst 1957), but contradict the findings of Furneaux (1956) and Broadbent (1958) whose findings are based on university subjects. The differences may be due to the level of education and age amongst the subjects in the present study and the studies of Furnaux and Broadbent

Comparing low neuroticism with low intelligence, the correlation is negative and insignificant ($r = -.153$). It is interesting to note that the correlation between low neuroticism and low creativity is slightly positive and significant ($r = +.23$). This may be due to the fact that subjects with low neuroticism are more stable as compared to high neurotics but this fact merits further investigation.

References

- Broadbent, D.E. *Perception and communication*. London : Pergamon Press, 1958
 Broadhurst, P. Emotionality and the Yerkes-Dodson law, *Journal of Experimental Psychology*, 54, 345-52, 1957
 Cattell, R. B and Cattell, A. K. S. *Handbook for the Culture Free Intelligence Test*. Illinois : I P A T, 1602, Coronado Drive, 1959

INDIAN EDUCATIONAL REVIEW

- Dutt, N.K. *et al.* A study of creativity in relation to intelligence, extraversion and neuroticism. *Indian Educational Review*. Vol. 8, 2, 1973
- Eysenck, H.J. *The Dynamics of Anxiety and Hysteria*. London : Routledge and Kegan Paul, 1957
- Eysenck, H.J. *Manual of the Maudsley Personality Inventory* London : Routledge and Kegan Paul, 1959
- Eysenck, H.J. *The structure of human personality*. London : Routledge and Kegan Paul, 1960
- Furneaux, W. D. Some psychometric characteristics of university students seeking psychiatric help. *Bulletin of British Psychological Society*, 29, 7, 1950
- Guilford, J.P. *Fundamental statistics in psychology and education* (4th Ed.). New York : McGraw-Hill Book Company, 1965
- Lynn, R. Two personality characteristics related to academic achievement. *British Journal of Educational Psychology*, 29, 213-16, 1959
- Lynn, R. and Gordon, I. The relation of neuroticism and extraversion to intelligence and educational attainment. *British Journal of Educational Psychology*, 31, 194-203, 1961
- Mehdi, B. *Manual of verbal test of creative thinking*. Aligarh : Published by Mrs. Qamar Fatima, 1973
- Ruston, J. The Relationship between personality characteristics and scholastic success in eleven-year-old children. *British Journal of Educational Psychology*, 36, 178-84, 1966
- Savage, R.D. Personality factors and academic performance. *British Journal of Educational Psychology*, 32, 251-53, 1962



Morale of Personnel in Agricultural Universities

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ESTABLISHMENT of agricultural university in India has been an educational innovation. The first university was set up at Pantnagar (U P.) in 1960. Since then 21 agricultural universities have been established in different states. Large states like U P. and Maharashtra have more than one agricultural universities.

Agricultural universities are goal-oriented institutions. They have vital role in stepping up agricultural production. In order to achieve this, integrated functioning of teaching, research and extension has been emphasized in the agricultural universities. With this new role the universities were to reorient themselves both organizationally and programme-wise. Orientation and training of the staff in integrated working of teaching, research and extension as also in internal assessment system was considered essential. Much will depend on such orientation and the morale and commitment of the university personnel in achieving the desired goal.

Agricultural universities are complex organizations. Yet very limited attention has been paid in studying them and thus improving them. Considering the vitality of such studies, an attempt was made to study the morale of the university personnel, a basic component of personnel management. Researchers in management, industry and business organizations have expressed their concern for maintaining a reasonable level of morale of personnel effectively accomplishing the goals. Morale is an intrinsic interest, initiative and satisfaction for the work which increase personnel effectiveness. The man in the organization is not only motivated by economic rewards but is motivated by diverse social and psychological factors. His behaviour is affected by feelings, sentiments and attributes. Human relations school generally associated worker satisfaction with productivity and emphasized that increasing satisfaction would lead to increased effectiveness. Likert (1958) advocates that supportive participative leadership elicits the highest morale productivity situations. The

findings of Roethlisberger and Dickson (1939) in the Hawthorne study revealed a direct relationship between morale and productivity.

In agricultural university organization, the effectiveness of teaching, research and extension functions and their total contribution to agricultural development will depend upon the working efficiency of the university personnel. In view of the importance of morale in determining the efficiency of an organization, a study was conducted to analyse the morale status of the university personnel in three selected agricultural universities in India in the year 1974. The specific objectives of the study were :

1. To study the morale status of the personnel in agricultural universities.
2. To analyse the factors affecting the level of morale of the personnel.

Research Methodology

All the agricultural universities in India were classified as : (a) agricultural universities with a single campus (mono-campus), (b) universities with agriculture as a faculty with multi-campus, (c) agricultural universities with multi-campus. A sample of one university from each group was selected randomly for detailed investigation. Four categories of personnel in agricultural universities, viz. (i) administrative, (ii) teaching, (iii) research, and (iv) extension, were selected for the purpose.

The grouping of personnel in teaching, research and extension was based on the time allocation to these functions. The personnel devoting two-third time to teaching job was considered as teaching personnel and so on. The respondents from teaching, research and extension personnel groups were selected by random method. All personnel from administrative category were considered for this study. Thus, in total 51, 60 and 54 personnel from A, B and C universities respectively were finally selected for this study. For measuring the morale of university personnel, a scale developed by Mathur (1972) by method of equal appearing interval was used. Since the scale was developed originally to measure the morale status of personnel in Community Development (CD) organisation, it was assumed that the same scale in modified form could be utilized for the purpose of studying morale of personnel in agricultural universities. The scale was tested for its reliability by test-retest method. The correlation coefficient between two sets of scores obtained on the interval of about 15 days was 0.78 which supports that the scale was reliable. The score of an

individual was based upon the arithmetic mean of the scale values of the statements agreed with.

Research Findings

Mono-Campus University : The morale score obtained from personnel in the university ranged from 1.00 to 8.50. This range was divided into three categories : (i) from 1.00 to 3.5—low morale, (ii) from 3.5 to 6.00—medium morale, and (iii) from 6.0 to 8.50—high morale. The distribution of personnel according to their morale status is given in Table 1. It was observed that the maximum percentage (70.82) of teaching personnel had medium morale status, 25.00 per cent had high and only 4.20 per cent reported to have low morale status. Of the research personnel, 73.68 per cent had medium morale, 26.32 per cent high and none of them expressed to have low morale.

TABLE 1
MONO-CAMPUS UNIVERSITY

<i>Range of Scores</i>	<i>Administrative Personnel</i>	<i>Teaching Personnel</i>	<i>Research Personnel</i>	<i>Extension Personnel</i>
1—3.50	—	1 (4.20)	—	—
3.50—6.00	1 (50.00)	17 (70.80)	14 (73.68)	6 (100.00)
6.00—8.50	1 (50.00)	6 (25.00)	5 (26.32)	—
Total	2 (100.00)	24 (100.00)	19 (100.00)	6 (100.00)

* Figures in the parentheses indicate percentage

In case of extension personnel, cent per cent reported to have medium morale status. Concerning the administrative personnel, equal proportion (50.00) was in medium and high category of morale.

TABLE 2
MULTI-FACULTY AND MULTI-CAMPUS UNIVERSITY

<i>Range</i>	<i>Administrative Personnel</i>	<i>Teaching Personnel</i>	<i>Research Personnel</i>	<i>Extension Personnel</i>
1— 3.50	—	1 (3.71)	3 (14.29)	1 (10.00)
3.50— 6.00	—	23 (85.18)	15 (71.42)	8 (80.00)
Above 6.00	2 (100.00)	3 (11.11)	3 (14.29)	1 (10.00)
Total	2 (100.00)	27 (100.00)	21 (100.00)	21 (100.00)

The t-test of significance of the difference between the means of morale of different categories of personnel revealed that t-values between the means of morale of teaching and research personnel was .54, between teaching and extension personnel was .25 and between research and extension personnel was .29. All these values were non-significant at .05 level of probability. This means that there was no difference between the morale of teaching, research and extension personnel in the university.

Multi-faculty and multi-campus university : The data presented in Table 2 revealed that cent per cent of the administrative personnel fell under high morale status category. A high proportion (85.18) of teaching, research (71.32) and extension (80.00) personnel had expressed to have medium morale. A low proportion (11.11) of teaching personnel had high and 3.71 per cent low morale in the agricultural university organization. Rest of the research personnel were equally (14.29 per cent) distributed in high and low morale status category. The similar pattern was observed in case of extension personnel where 10 per cent of them were distributed in each high and low morale category.

The t-values calculated between the morale scores of teaching and research personnel (— .26), teaching and extension personnel (.63) and research and extension personnel (.75) were not significant. This means that teaching, research and extension personnel did not differ significantly with each other in respect of morale status even at .05 level of probability.

Multi-campus university : Data regarding morale of the personnel in multi-campus university revealed that equal proportion (50.00) of the administrative personnel had medium and high morale. A high proportion of teaching (72.73) and research personnel (83.34) had medium morale, whereas cent per cent of the extension personnel had medium morale. A good proportion (27.27) of teaching and 12.50 per cent research personnel had high morale. Only 3.10 per cent research personnel had expressed to have low morale.

TABLE 3
MULTI-CAMPUS UNIVERSITY

Range of Scores	Administrative Personnel	Teaching Personnel	Research Personnel	Extension Personnel
1—3.50	—	—	1 (3.16)	—
3.50—6.00	1 (50.00)	16 (72.73)	20 (83.34)	6 (100.00)
6.00—85.00	1 (50.00)	6 (27.27)	3 (12.50)	—
Total	2 (100.00)	22 (100.00)	24 (100.00)	6 (100.00)

*Figures in the parentheses indicate percentages

The calculated t-values between teaching and research personnel was — 26, between teaching and extension personnel was .63, and between research and extension personnel was 75. These values were non-significant at .05 level of probability. This revealed that there was no significant difference even at .05 level of probability in the morale status of different categories of university personnel.

Tables 1, 2 and 3 make it clear that in all agricultural universities majority of the personnel had medium morale and a very low proportion had high or low morale. This is indicative of the fact that personnel policies such as job demands, working conditions, pay, employees' benefits, friendliness and cooperation of fellow employees, superior-subordinate relationship, and opportunity for growth and advancement are not very much conducive. The findings regarding morale status are supported by Mathur (1972) where majority of the extension personnel in CD organization had medium morale.

Morale and other factors : To determine the relationship of morale with other factors correlation coefficient was computed and the results are presented in Table 4.

TABLE 4
RELATIONSHIP OF MORALE WITH OTHER FACTORS

Factors	Values		
	Mono-campus University	Multi-faculty Multi-campus University	Multi campus University
Cadre	2.9*	.29*	.29*
Age	— .04	.11	— .04
Education	.10	.28*	.28*
Experience	.23*	.16	.03
Training	.05	.28*	.05
Job preference	— .09	.10	— .19

*Significant at .05 level of probability

**Significant at .01 level of probability

It is evident from Table 4 that in mono-campus university, cadre and total experience of the personnel was positively associated at .05 level of probability with their morale status. In case of multi-faculty multi-campus-university, cadre, education and training had significant positive relationship with morale at .05 level of probability. Similarly in case of multi-campus university personnel, cadre and education had positive and significant correlation with their morale. Thus, it is clear that cadre, education,

training and experience are the important factors leading to high morale level. It implies that necessary opportunities for higher education and training should be provided to the personnel which could lead to higher morale in the university and contribute efficiently to the organizational goals.

Conclusion

The level of the personnel morale in all the three types of universities was medium. This gives sufficient reason to believe that the concept of fusion process has not been fully utilized. It seems the organizational goals are superimposed on the individuals without giving due attention on their individual needs and motives.

The optimum attainment of agricultural university objective, viz. integration of teaching, research and extension and thereby to contribute to agricultural production is dependent upon satisfying both the individual goal and the organizational goal. The factors like inter-personal relations, social situation, psychological satisfaction, education, and training which contribute to high morale need to be improved. Administrative and personnel policies should take care of individual development, desirable working relationship between employees and employers, between employees and employees and effective moulding of human resources as contrasted with physical resources.

References

- Likert, R. Measuring organisational performance. *Harvard Business Review*, March-April, 341-50, 1958
- Likert, R. and Willits, J. M. *Morale—the mainspring of management. Morale and Agency Management*, Vol. I. Martford : Life Insurance Sales Research Bureau, 1940
- Mathur, P. N. A study of organisational communication patterns and interpersonal relations in community development blocks of Delhi territory. Unpublished Ph. D. thesis, University of Udaipur, 1972
- Roethlisberger, F.J. and Dickson, W.J. *Management and the worker*. Cambridge University Press, 1939
- Singh, A. An organisational communication study in Agricultural university set-up. Unpublished Ph. D. thesis, Division of Agricultural Extension, I. A. R. I. New Delhi, 1974.



Educational Attainment of Children in the Sweeper Community at AIIMS Campus : An Exploratory Study

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SCAVENGING is considered as the filthiest of the occupations. The society has traditionally thrown this occupation upon the Harijans. Every occupation has its social effects as well as social importance. For example, teaching occupies its own importance not only in the society but also on the individual and family life of a teacher, which are no less important. His children day in and day out, see their father preparing his lectures. They see how the father is consulting a small book 'dictionary' off and on to find the correct meanings to words. They see how nicely he is arranging his books in a small house library. From the very childhood they are aware of the daily newspapers and magazines. They can very well understand the importance of a pen and inkpot. The home atmosphere is either of studious nature or disciplined one. On the contrary, a scavenger goes on to his work with filthy clothes and worn-out shoes. His house-keeping conditions are permanently squalid or only intermittent efforts are made in keeping the home clean. There are no interest in keeping up standards. He is generally unconcerned about his children's education. Thus leaving the decision to the children whether he goes to the school or not. Harijan's children see nothing but some elderly persons sitting and smoking 'hukka'. They see the father running after pigs. The broom seems to them the beginning and the end of life. In the present study an attempt has been made to know the achievements in schools by the Harijan children

Needs of the Study

1. The government has provided certain concessions to the children of Harijan community. How many of them are availing this opportunity ?

* The author is grateful to Dr. (Smt) P. Ramalingaswami and Shri M. C. Sondhi for their inspiration to work on this problem.

2. The studying children, generally, do not take studies seriously, this results into a large drop-outs. The percentage of drop-outs is always high among these communities, the reasons for such drop-outs needs further study.
3. The children being usually regarded as economic assets by these communities, the problem needs further exploration.
4. Has the city environment, being more materialistic, its effects on the younger generation of these communities.

Objectives

1. To investigate the total number of children in 50 families and causes thereof for not going to school.
2. To see the impact of scavenging on the children, whether there is negative effect on the child on his father's occupation.

Methodology

Of the 150 families, 50 being quite representative were taken for this study. The list of families were drawn up and 50 families were taken up randomly. The variables taken were age, sex and educational standard (in case of studying children) and the different reasons put forward by the parents for non-schooling of their children. Later on children who were never sent to school or those who dropped out at different stages were also interviewed separately and the causes responsible for this were recorded. Lastly, with the kind cooperation of the headmaster relevant information regarding school-going/drop-outs were gathered. However, the questionnaires were administered on parents.

Findings

Parents' educational level : Before discussing about the literacy level it is imperative to define the different standards of education in Indian languages among the parents. In the first category we may take those who can neither write nor even could make signatures. They are taken as 'totally illiterates'. In the second category are put those who can only read Hindi. Those who could both read and write but did not have any formal schooling falls in the third category. The fourth category is of those who have formal schooling and also have passed Classes I, II, III, etc. In the present study there are only 50 fathers and 48 mothers (two mothers being dead). Out of these, 23 fathers and only one mother are so-

called literate parents. Of the 13 fathers, one falls in the second category who can only read. Other two can read and write Hindi, but they never had a formal schooling. The remaining ten fathers and one mother had the formal schooling and could read and write

Table 1 shows that majority of the parents (fathers and mothers) are illiterate. Their percentages are 74 and 98, their numbers being 37 and 47, respectively. There are only 26 per cent literate fathers while the percentage of literate mothers is as low as 2, the number being only one. Thus all the mothers are almost illiterate. There is no such person from either sex who has passed either primary or had further schooling in middle classes. Thus we can very safely reduce them to the level of illiterates.

TABLE 1
EDUCATIONAL LEVEL OF PARENTS AND THEIR CHILDREN

S No	Level of Education	Parents			Children		
		Fathers	Mothers	Both	Male	Female	Both
1.	Literates (Classes I-V)	13 (26%)	01 (2%)	14	62 (49.2%)	25 (23.6%)	87 (37.5%)
2	Illiterates	37 (74%)	47 (88%)	84	64 (50.8%)	81 (76.4%)	145 (62.5%)
		50	48	98	126	96	232

Children never sent to school : Before a mention of the school-going children is made, an attempt is made to reckon the children who are deprived of the natural right of formal education. Out of 232 children in 50 families, 145 (64 male+81 female) did not get the opportunity of formal schooling. The age-wise distribution of these children is given in Table 2.

TABLE 2
AGE-WISE DISTRIBUTION OF CHILDREN IN 50
FAMILIES WHO WERE NEVER SENT TO SCHOOL

S. No.	Age-group	Male	Female	Both
1.	Below 5 years	27	22	49
2.	5 to 8 years	22	26	48
3.	9 to 12 years	06	13	19
4.	13 to 16 years	03	11	14
5.	Above 16 years	06	09	15
		64	81	145

Among the infants there are 30 (19 males and 14 females) between the age-group 3-4 years. They can be diverted to nursery school. In the age-group of 5-8 years the number of children is 48, who are missing opportunity of schooling. An attempt has been made to ascertain the reasons for not sending these children to school. The same are summarized in Table 3.

TABLE 3

REASONS WHY CHILDREN WERE NEVER SENT TO SCHOOL

S. No.	Reasons	Effective children		
		Male	Female	Both
1.	To look after young brothers and sisters	09	20	29
2.	Due to immense love never sent to school	08	00	08
3.	Poverty : large number of children	00	13	13
4.	No utility of education	00	15	15
5.	Due to mothers early death	02	03	05
6.	Bigamy practice by the father	02	03	05
7.	Indifferent	04	03	07

School-going children : It was found that 87 (62 male and 25 female, 37.5 per cent) children out of 232 were enrolled in the school. Of the total number of children 126 were males and the rest 106 were females. The majority of them, i. e. 45 are in primary, the next highest majority (13) in middle and there are only three boys in higher secondary classes. Of these three, one passed higher secondary examination, 35 out of 45 enrolled in primary are continuing their studies, 29 are regular school-goers and other six are irregular. The other 10 have already discontinued their studies. Among these 10, five have gone over-age, while the other could still attend schools.

Of the 13 who have passed primary and are enrolled in middle classes, only five are attending but are irregular in their classes. The remaining seven have already discontinued the studies. Five are over-age. The rest two can still go to schools. Among the boys studying in higher secondary classes, one has passed out and the others are regular in attendance. Of the entire lot, only one could pass B. Sc. Out of 106 girls, 25 girls were enrolled in schools, their percentage being 23.6 only. Twenty-three were in primary while the rest two reached in middle classes. Of the 23 in primary, 16 were going regularly, the other 7 dropped out. An attempt was made to ascertain if the drop-outs have adequate age for attending school. Seven boys and five girls of the drop-outs of different

TABLE 4
LEVEL OF LITERATES AND ILLITERATES (MALES AND FEMALES)
IN THE AGE-GROUP 6 + to 10 +

<i>S. No.</i>	<i>Sex</i>	<i>Literates</i>	<i>Illiterates</i>	<i>Both</i>
1.	Boys	26 (52%)	24 (48%)	50 (100%)
2.	Girls	09 (23.7%)	29 (76.3%)	38 (100%)
	Both	35 (39.8%)	53 (60.2%)	88 (100%)

classes were found 'still having adequate age for attending school'. While 10 boys and 4 girls were 'over-age for attending school'.

TABLE 5
DROP-OUT PERCENTAGE CALCULATED ON THE BASIS OF ENROLLED
POPULATION OF CHILDREN IN EACH AGE-GROUP

	<i>Age-group</i>	<i>Boys</i>	<i>Girls</i>	<i>Both</i>
1.	6 to 10	0	1 (2.9%)	1 (2.9%)
2.	11-13	5 (19.2%)	5 (19.2%)	10 (38.4%)
3.	14-16	4 (26.5%)	3 (20.2%)	7 (46.7%)
4.	16+	8 (72.7%)	0	8 (72.7%)
	All	17	9	26

It is apparent from Table 5 that in the age-group 6-10 the percentage of dropped out was only 2.9, while in the age-group 11-13 the percentage went up to 38.4. Similarly, 46.7 per cent dropped out in the age-group of 14-16. With the increase of the age the percentage of drop-outs also increased. One thing is to be made clear that the increasing drop-out percentage as apparent in Table 5 does not mean cross-sectional drop-outs. It simply showed the drop-out according to their ages. Table 6 shows the reasons for dropping out.

TABLE 6
REASONS FOR DROP-OUTS

S. No.	Reasons	Boys	Girls
1.	Due to hostile treatment in the school	11	5
2.	They were not allowed to drink water from common pitchers in the school and to go to homes and did not turn up	12	5
3.	The children were put to various menial jobs in the school such as cleaning the benches	10	4
4.	Passed Class V and were not admitted by parents to other school being across the main road	5	2
5.	Became useful for monetary help	13	9
6.	To look after the young children at home while their parents were away on job	14	9
7.	Due to early marriage	9	5

Discussion

(a) *Enrolment in classes I to V* : The study reveals that the enrolment in Classes I to V is equal to 39.8 per cent of the estimated population in the age-group 6-10 years. The all India enrolment in Classes I-V constitute 74.36 per cent of the estimated population in the age-group 6 to 10. In Kerala the percentage of enrolment in this age-group was 116.57. The lowest percentage reported was 46.99 in Bihar. Thus, in the present study the percentage of enrolment was quite low. The enrolment of boys was 52 per cent in the said age-group whereas the all India enrolment of boys in classes was 93.39. The highest percentage reported was 121.53 in Kerala. The enrolment of girls in the present study constituted 23.7 per cent of the estimated girls' population in the age-group 6-10. The all India enrolment in Classes I-V of girls was 54.70 per cent of their estimated population in the age-group 6-10. Thus it was a matter of great concern. The enrolment in Classes VI-VIII was equal to 4.65 per cent of the estimated population in the age-group 11-13. The all India enrolment in Classes VI-VIII was equal to 30.15. The corresponding percentage of boys and girls were 43.46 and 16.63, respectively. In the present study the corresponding percentages of boys and girls in this age-group 2.32 in each case. The enrolment of girls (2.32 per cent) was even lower to the lowest percentage of 4.24 in Bihar.

(b) *Drop outs* : The drop-out percentages go on increasing, starting from 2.9 per cent in the first age-group to 38.4 per cent in the second, 46.7 per

cent in the third, and in the last it reached up to 72.7 per cent. If the percentages distribution of drop-outs are calculated on the basis of total number of drop-outs 65.4 per cent drop-outs were in the Classes I-V, while in Classes VI-VIII the drop-outs on the same basis, constituted 34.6 per cent.

Suggestions

The present study gives only a bird's eye view of the problem. This needs further investigation all over India and close coordination between different agencies, responsible for the delivery of education, social uplift and social welfare at large. Some useful suggestions are given below :

- Parents involvement in PTA through frequent meetings.
- Lady teachers should conduct mothers' meeting and try to narrow the gap between mothers and teachers. The progress of their children and also the way the mothers can help the teachers to bring about a required change in the child's personality should be discussed. Also to realize the importance of mothers' role in the development of child's mental make-up.
- Family planning is dire need in these communities to facilitate the proper care to children and also to mothers.
- Matriculation examination should be compulsory for every child.



Estimation of Average Proportion of Failures at a University Examination : A Numerical Approach

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THE STUDY of the estimation of the average proportion of failures at a certain examination for a number of years is of immense importance both for the university authorities and government's policy-makers regarding examination reforms, etc. The proportion of failures at an examination in a particular year i is given by $p_i = d_i/n_i$ (d_i = number of students who failed, n_i = total number of students who appeared at the examination). When d_i and n_i are known, the study is very simple as we have before us the usual conventional methods, viz.

- (i) Simple arithmetic mean of the proportion, denoted by \bar{p}
- (ii) Geometric mean of the proportion, denoted by \bar{p}_g (as proportions may be thought of as a sort of ratios).
- (iii) Weighted arithmetic mean \bar{p}_w .

The difficulty in the estimation starts when n_i and d_i are not known or, say, these values are missing and we have only p_i 's in hand. To get an estimate of average proportion, under these circumstances, is still an open question. The only attempt made in this connection is by Akhtar and Sinha (1973). By using sin-inverse transformation method, they have made an attempt in this direction. The method in brief is as follows:

Let $\sin^{-1} \sqrt{p_i} = \theta_i$ (in radians). Then $\bar{\theta} = \frac{\sum \theta_i}{k}$. Suppose that \bar{p}_i is the average values of p_i 's which is to be obtained by utilizing the transformation $\sin^{-1} \sqrt{p_i} = \theta_i$. Then we can write $\sin^{-1} \sqrt{\bar{p}_i} = \bar{\theta}$. So, $\sqrt{p_i \sin} = \bar{\theta}$ and therefore $\bar{p}_i = (\sin \bar{\theta})^2$.

Akhtar and Sinha compared the values of \bar{p}_i 's with those obtained by the conventional methods (i) and (ii) and found that \bar{p}_i 's were in almost all cases giving better results.

In the present paper, we have tried a different technique for the estimation of average proportion of failures at an examination for the same situation on the data used by Akhtar and Sinha. The assumptions and principles of the proposed technique are as follows

We know that if a function $f(x)$ is continuous on an interval $a \leq x \leq b$, then its average value over this interval is defined to be (see for example, Thomas 1973).

$$\frac{1}{b-a} \int_a^b f(x) dx. \quad \dots(1)$$

In many cases the definite integral in (1) has to be evaluated numerically. One of the simplest of these numerical methods is the so-called trapezoidal rule.

Suppose that the interval $a \leq x \leq b$ is divided into n sub-intervals, each of length $\Delta x = \frac{b-a}{n}$, by inserting the points

$$\begin{aligned} x_1 &= a + \Delta x, \\ x_2 &= a + 2\Delta x, \\ &\vdots \\ x_{n-1} &= a + (n-1)\Delta x \end{aligned}$$

between $x_0 = a$ and $x_n = b$ According to the trapezoidal rule,

$$\int_a^b f(x) dx \approx \frac{b-a}{2n} [f(a) + 2f(x_1) + 2f(x_2) + \dots + 2f(x_{n-1}) + f(b)]$$

or

$$\frac{1}{b-a} \int_a^b f(x) dx \approx \frac{1}{2n} [f(a) + 2f(x_1) + 2f(x_2) + \dots + 2f(x_{n-1}) + f(b)] \quad \dots(2)$$

On the basis of (1) and (2), the average value of a function $f(x)$ over the interval $a \leq x \leq b$ can be approximately taken as

$$T = \frac{1}{2n} [f(a) + 2f(x_1) + 2f(x_2) + \dots + 2f(x_{n-1}) + f(b)] \quad \dots(3)$$

It should be remarked that as $n \rightarrow \infty$, the right-hand side of (2) approaches its left-hand side, that is, we obtain the 'exact' average value.

In the present paper, we have used formula (3) to estimate the average proportion of failures. We illustrate the use of (3) by considering the

case of the collegiate who appeared in the 1960-1970 annual examinations (see Table 1, Akhtar and Sinha 1973).

In this case, we take $a = 0$, $b = 10$, $n = 10$, and $f(x_0) = f(a) = 0.3431$, $f(x_1) = 0.3484, \dots, f(x_9) = .3448$, and $f(x_{10}) = f(b) = .2725$. Substituting these values into (3), we find that $T = .28768$.

The estimates \bar{p}_w , \bar{p}_g , \bar{p}_t , and T are given in the following Table :

TABLE
DIFFERENT VALUES OF \bar{P}_w , \bar{P} , \bar{P}_g , \bar{P}_t , T

Criteria of Classification	\bar{P}	\bar{P}_w	Estimators \bar{P}_g	\bar{P}_t	T
Collegiate (A)	.2895	.2871	.2860	.2882	.2877
Non-collegiate (A)	.3841	.3739	.3708	.3818	.3846
Collegiate (S)	.3381	.3298	.3051	.3322	.3253
Non-collegiate (S)	.2457	.2269	.1190	.2291	.2629

Like \bar{p}_t 's values, in no case \bar{p}_g 's values were found to be superior to T values. So, in cases where we have to average a given set of proportions of failures only at a university examination for a number of years the estimator T , besides \bar{p}_t , might be used. In some cases, somewhat improved results can be obtained if the average of T and \bar{p}_t is taken.

References

- Akhtar, H. S. M. Q. and Sinha, Anjani Kumar. On the estimation of the average proportion of failures at a university examination. *Indian Educational Review*, 8, 1, 240-245, 1973
- Thomas, G. B. Jr. *Calculus and analytic geometry*. Reading, Mass.: Addison-Wesley Publishing Company, 178-179, 1973.



Problems of Overcrowded Classes : A Pilot Study

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EVERY INSTITUTION has certain aims and ideals before it. Successful achievement of such ideals is possible or can be made possible only by efficient administration. The school is one of the important social institutions. In the absence of efficient administrative machinery, there is bound to be a chaos in school life. An efficient administrative machinery helps for a systematic work in the school. It gives proper place to right persons at right time and in right manner. Machinery here means the school building, the teachers and the pupils.

Today, everywhere there is rapid expansion of education. Along with this expansion, there is an increase in educational expenditure. On account of this, there is delay in the fulfillment of certain targets. So also, there are many more difficulties like. (i) Absence of long-term planning, (ii) Tempo of expansion (for which, state government also is finding it difficult to cope up with, (iii) Quality Vs. Quantity — More attention has been paid to the quantity, (iv) Provision for building — Today, majority of the schools have no satisfactory arrangement even to satisfy the minimum requirements of pupils, e.g. playground, canteen, good laboratory, fully equipped library, etc., (v) Provision of equipment— Necessary equipments like furniture, craft-material, stationary, black-board and other contingency is not seen, (vi) Adjusting class timings — Because of lack of space, two and sometimes even three shifts are witnessed. The headmaster is worried. Management is silent. Teachers' hands are tight. Classes are getting more and more overcrowded. Keeping in view these things the investigator has made a sincere attempt of finding out the effect of overcrowded classes on the lessons of the teacher-trainees. Throughout, an effort is made to include all factors that are found essential as well as useful.

Factors Leading to the Choice under Investigation

It is true that no one can expect that the school classroom should work like rubber which can expand or contract at the needs of the user. When young pupils are made to sit in an overcrowded class, they are bound to show their dissatisfaction in all possible ways. Neither the teacher nor

the pupil can be happy in such a classroom. The very purpose of education is defeated. To expect the child's mind to grow where the child's body cannot be comfortably placed, is to expect nothing but impossible. However, whatsoever difficulties are involved, it must not be forgotten that the aim of education is to draw the best in the child. Having observed the situation since last seven years, and after supervising the practice-teaching lessons of hundreds of B. Ed. pupil-teachers, the writer felt a keen need to do some small-scale research in this matter. Finally, she started the task of this action research.

Objectives

1. To know the difficulties of teacher-trainees while giving lessons in an overcrowded class.
2. The effect of the overcrowded classes on the lessons of the teacher-trainees.

Limitations

1. This investigation is restricted only to those schools that are taken up for our practice-teaching purpose.
2. It is further restricted to only those teachers who are undergoing B. Ed. training.
3. The number of pupil-teachers is limited to 80 only.

Sample

This small-scale research has been undertaken only on an experimental basis. Hence the population from which the sample subjects are drawn, consists of 80 teacher-trainees, irrespective of their age, sex, marital status, economic background, etc. The number of schools selected is 30.

Methods and Techniques

The problem under investigation is almost based on the quality minute observation. But with a view to collect some detailed information, the writer had made use of interview as a tool of investigation. The appointments were taken with the respective headmasters of the practice-teaching schools and lot of discussion took place. On the basis of this, as well as through the distribution of the questionnaire to the heads of the schools, it was easy for the investigator to accumulate the necessary information.

Thus the methods adopted for this action-research activity were questionnaire, interview, and Personal observation.

Analysis of the Data and Findings

It is a random sample without any bias. However, before discussing about the collected material, the writer feels it necessary to define certain terms.

Definition of a class : From the point of view of organization of school for teaching, the class is the working unit. It is a group of pupils put together for the purpose of collective instruction. But a class is not a mere aggregation of children arbitrarily grouped as a matter of mechanical administrative convenience. The member of a class is related by common interests, similar attainments, aptitudes and common aims. The 'class' in a school is, thus, a homogeneous group. This homogeneity relates ordinarily to the intellectual attainments and achievements of the fundamental school subjects. In such an ideal class, pupils will be inspired by common ideals.

Area of the classroom : Report of Mudaliar Commission, Radhakrishnan Commission, and Kothari Commission also read about the space requirement. However, it may be mentioned here that the limit of the number of pupils in the classroom has now been extended to 60 pupils per class.

Analysis of the answered questionnaire : Out of the 30 schools chosen for the action research, three were girls' schools, two were boys', and the remaining co-educational. Then, as far as the shift system is considered, it was found out that only five schools had only one shift, and the rest were having two-shift system. Out of the thirty schools it was found that nearly 75 per cent the schools had a strength of 2500 to 3000 pupils! It was also found that in certain schools, most of the classes had fixed number of divisions. Whereas in some schools, only for Classes V and VI there were five divisions and the rest of the classes had only three or two. It was also found out that the number of pupils in each class ranges from 60 to 65! Hardly in four schools the number of students admitted in each division was 40 to 45. An ideal class indeed! But in three schools, there were 70 students found in certain classes.

Observations of the pupil-teachers regarding overcrowded classes : Altogether these observations were made of 80 B.Ed. trainees splitted up in 30 practice-teaching schools. With an exception of one or two schools, a good cooperation has been sought from the headmasters of the respective schools. From the analysis of the data gathered regarding the strength, pupils

admitted in each class, etc. a clear picture has already been extracted. Now, the investigator wants to deal with the observations that she has made while supervising the lessons of the B. Ed. trainees, particularly in overcrowded classes.

It is true that though a teacher can plan his/her lessons thoroughly, it is well-nigh impossible for anyone to prepare plans for all the subjects that he/she is required to teach in the near future.

Among the pupil-teachers who had to give their practice-teaching lessons through various schools, some were experienced teachers and some were unexperienced. Method master's job is to guide the pupil-teacher thoroughly. Now, if the pupil-teacher is an unexperienced one, he/she will be able to take quite a fair lesson, if the guidance given happens to be perfect and if the trainee also happens to follow all those instructions given by the method master. However, sometimes it so happens that in spite of proper guidance of the method master, good preparation on the part of the pupil-teacher, the teaching part of the trainee does not come out to be as effective as it should be. The reason mainly being an overcrowded class.

Teaching is essentially a spiritual process. It involves the connection of mind with mind. A good teacher is a powerful and abiding influence in the formation of character. Therefore, a provision of a proper teaching staff in a class with limited number of pupils is more important a consideration than a final school building or rich curriculum or expensive equipment. The class consisting of less number of pupils is definitely an ideal situation.

Some aspects observed by the investigator while the B. Ed. teacher-trainee was teaching in an overcrowded class :

(a) *Psychological effect* : Particularly, if the teacher-trainee is not an experienced one, usually gets bewildered as soon as he/she enters in such an overcrowded class. It is said that 'first impressions always last long'. This usage of the term works out perfectly in case of the teacher-trainee. In the very first instance, if the fear for facing the class is well set in the teacher-trainee's mind, it is very difficult for him/her to get rid of this fear.

(b) *Difficulty in maintaining a discipline* : Once, the situation as stated above is faced, the teacher-trainee finds it extremely difficult to maintain a good class discipline.

(c) *Diversification of attention* : The teacher-trainee's mind is split up in two activities. He/she has to concentrate on the subject to be taught and also to be busy in keeping the pupils silent at one and the same time ! In such a divided activity, much of this energy is wasted. Hence the task undertaken suffers.

(d) *Poor hearing* : The pupils in an overcrowded class are usually unable to catch the words of the teacher. Even under normal conditions, a regular teacher who is familiar with his/her routine work, has to talk loudly, so that he/she could be heard by the pupils sitting on last benches. What can be the position of a teacher-trainee? Every aspect is a novel thing to him/her. The area, the students, the method of teaching, profession chosen, etc. are the new things to the teacher-trainees. Now, under such circumstances, particularly in case of a female teacher-trainee, it has been observed that most of them have such a feeble voice that it is hardly heard by the pupils of the last benches.

(e) *Psychology of the school students* : Even for an experienced teacher it becomes difficult sometimes to maintain a good discipline in the class. Pupils in the class are fully aware that the teacher who has entered the class is not a regular teacher of the school. A little mischief here or there is bound to be tolerated by this new teacher. Further, howsoever angry this teacher may be, it will not produce any serious consequences as such a teacher is unable to take any strict action. Now, this is a common thing that is happening in an overcrowded class, and even though the teacher-trainee happens to be an experienced one, he or she has to waste few minutes in minding the class, for which there is no escape.

(f) *Equal spreading of the questions in the class* . The class is overcrowded and the teacher-trainee completes the model-reading part (which is not heard properly by the last bench pupils) Then the silent-reading begins. Thereafter, the questions based on the text are asked. Now comes the hitch. The class being so big, one portion of the class automatically gets neglected. Sometimes there is a habit-formation on the part of the teacher-trainee that he or she stands (or maintains to face the class) in such a way that one portion of the class is not at all taken into consideration.

(g) *Difficulty in conducting science lessons* : Sometimes the teacher-trainee has to perform an experiment in the class itself. First of all, the class is overcrowded. Pupils make noise. There is a rushing towards the table to see what the teacher is doing. Discipline of the class is shattered and the lesson becomes a failure. Another instance is that of taking the entire class to the laboratory. Such a shifting of the entire class—that too an overcrowded one—from one place to another is still worse. By the time the pupils have settled down, half the time of the scheduled time is already consumed! The poor teacher-trainee in such situations becomes fully handicapped.

Free movement of teacher-trainee is obstructed : This factor goes in connection with the things discussed above. It is one of the factors of the practice-teaching aspect that the teacher-trainee must pay attention to each

and every pupil in the class. Suppose it is a lesson in mathematics or science. The teacher-trainee wants to know whether each pupil in the class is busy in solving the sum or in copying down the recapitulatory material. He or she is, therefore, required to take a round in the class.

Concluding Remarks and Suggestions

The following factors deserve attention. The study finds that almost 99 per cent of the classes in schools are overcrowded. After having talked on this matter with the respective headmasters, the writer found that there are certain specific reasons for such overcrowded classes these being mainly : (a) increasing population, (b) inadequate place, (c) lack of finance, and (d) negligence by the management in dealing with the students' problem, etc. Such shortcomings may be gradually made up by (i) a judicious use of creative energy of the teacher through personal persuasion ; (ii) obtaining funds from the surrounding society by the periodical arrangements of cultural shows ; (iii) gradually requesting the parents to take more interest in the education of their children ; (iv) introducing an element of travel whereby the curiosity of the pupils can be adequately fed ; and (v) introducing the use of microphone while teaching.

The new outlook stresses all-round development of human personality—physical, mental, emotional and social. The emphasis on children's development has made parents and teachers shed their old worn out ideas about what they should do to children placed in their charge. They are now anxious to provide for the developmental needs of children. This will correct the defects of one-sided development of children. Last but not the least, the author wishes to make a sincere suggestion regarding the remuneration of the teacher. Financial position of the teacher must be improved. Otherwise qualified, intelligent and efficient persons cannot be attracted towards this profession, howsoever noble it may be. □

BOOK REVIEWS

Microteaching in Higher Education

Microteaching in Higher Education : Research, Development and Practice.

ELIZABETH PARROTT. Society for Research into Higher Education Ltd ,
University of Surrey, Guildford, 1977, pp. 107

PROFESSOR (MRS.) PARROTT is one of the pioneers in the field of teacher's training programme. During her stay at the University of Stirling she was responsible for initiating the degree courses in education where microteaching was included as an integral part of these courses from the outset. Since 1972, she has been working as the Director of the International Microteaching Research Unit at the University of Lancaster. The self-instructional microteaching materials for use in teacher's training is her initial project after joining the Lancaster University. Along with her own studies and publications she has been engaged on 'studies of processes essential to the international transfer, implementation and dissemination of self-instructional learning systems' in cooperation with the research groups of the USA, Holland, Sweden, Germany and India, having a financial support from Leverhulme Trust.

From the very prefatory note of Prof. Parrott it seems that she has attempted to bridge the gap between the pre-service and in-service teacher education programme in the context of behaviour modification, its practice, research and development through microteaching in self-instructional courses. In addition to that, five chapters in total have been dealt with the main areas of her own experience. Microteaching and its principles; microteaching in teacher education; initial training to pre-service and in-service training to school teachers, and teachers in higher education are the main ingredients in the first two chapters of her monograph. Development of self-instructional courses, its instructional models, process-

adaption and testing, and evaluation of the use of these courses by experienced inservice teachers are the basic structure of the third chapter. Some research studies based on teachers' perceptions of the self-instructional microteaching courses and effects of this course on teachers' behaviour and attitude are reported in the fourth chapter. Lastly, in the final chapter, she has narrated the microteaching as a systems approach to teacher education with the practical considerations suitably using the sophisticated gadgets for microteaching modelling and feedback sessions.

Teaching is a complex and demanding activity, involving techniques of organization, control, and command of teaching skills well beyond the intending teacher at the beginning of his course. Microteaching attempts to reduce the situation to manageable proportions. Through a review of studies she has put forth the ideas of analytical approach in skill training, and self-feedback through gadgets. She has further reported the review on transfer of micro-skills to macro-situation and concluded that the systematic models for behavioural changes must include provision for focussed confrontation including modelling, practice and feedback. In addition, focussed confrontation must result in the desire to change in the direction of the goal and provide a continual basis for evaluating and reducing discrepancies between performance and goal attainment. This continual basis may be the instructional sequences: 'study skills—observe skills—practise skills—evaluate use of skills—reline skills' like the cybernetic approach through which the teacher may continue his practice, the self-instructional microteaching courses on twelve teaching skills of affective questioning for developing a desired behavioural pattern in a self-regulating system.

The initial training for the teacher is the duration of three/four years at the University of Stirling where microteaching is adopted in a concurrent degree course. One of the objectives of the course, as reported by Prof. Parrott, is to make the teacher competent in analysing their teaching as a deliberate and purposeful activity, to adjust themselves in the new strategies and skills, and to develop the new patterns of behaviour appropriate to the teaching situations during their professional activities. To implement the course programme for achieving those objectives a conceptualized model of 'microteaching in a concurrent degree course' has been framed accordingly during three semesters. She has emphasized from her research evidences that microteaching will be effective without supervisory personnel either in pre-service or in in-service programme. The self-instructional courses can be implemented and practised properly free from the insecurities like pre-service. Maximum opportunities for imme-

diate classroom practice of teaching skills will be received for in-service teachers and teacher-educators in their respective institutions.

The self-instructional microteaching course was initially developed by Walter Borg along with his associates during 1970 for the in-service teacher's training programme in the USA. But Prof. Parrott led to a more substantial revision of this American version. Though the revised version is not a transliteration from American but some changes are introduced in the teachers' handbook towards formal and impersonal presentation, examples of illustrated teaching skills familiar to British teachers and shifting of organizational pattern to centre-based rather school-based because of lacking the sophisticated gadgets in schools. This British course on twelve effective questioning skills takes the form of a 'package' including a teachers' handbook of these skills; a set of five videotaped instructional sequences in which questioning skills are demonstrated and explained; a coordinator's handbook designed to assist course coordinators with administrative tasks; and an evaluation manual prepared for those who wish to research the effects of the course in their own situations. In addition to her own experimental study on this British version over a number of hypotheses she has taken up a comparative study of the British version with the American version. The results are similar to those previously obtained by Walter Borg. However, this finding emphasizes the transferability of learning systems from one state to another and that is why this study reflects the idea of adopting this British version of self-instructional microteaching course in other countries like India, Sweden, USSR, Germany, Spain. From the recent reports it is seen that with some modifications the courses have been accepted by them satisfactorily.

After testing the feasibility of self-instructional courses on the in-service programme she has further taken up some studies on the teachers' perceptions towards this course on generating enthusiasm, interest and commitment to cope with the enriched strategies and tactics. And a further set is on the effect of this course on teachers' behaviour and on their attitudes. The results of her study have been reported on two basic aspects: (a) teachers' attitudes to the course, and (b) teachers' characteristics and response to the course. Attitudes towards the course have been evaluated in the light of various questioning skills from effective questioning; its usefulness, transfer to the classroom situation and need of such skills for classroom learning; components of the instructional model; classroom activities; attitudes towards teaching on post-test situations; and repertory grid results on systematic patterning of responses with the construct as times and elements as interaction.

The components of microteaching cycle are consistent with the various phases of systems approach to teacher education. She has indicated a cyclical fashion of systems approach of specification of behaviour, carefully planned training procedures, measurements of the results of training in terms of the desired behavioural objectives, feedback of the observed results, re-entry into the training and measurement again of the results. The most important effect of these courses on experienced teachers as per this systems approach is that it motivates them to re-examine their classroom behaviour and encourages them to continue with the analysis of their teaching after the course of training is over. The self-instructional microteaching materials described in this monograph suggest that these materials could be useful at three stages of teacher education, i. e. (i) the training of professional tutors, (ii) the provision of part-time in-service programme for probationary teachers during the induction period and (iii) general in-service training courses.

Though her monograph reflects on much of the self-instructional microteaching stating that it is a 'frill' in using tutor during supervision but an inclined viewpoint has been marked here during the practical considerations of using microteaching programme. The acceptance of using audiotape in self-instructional microteaching courses is a failure for achieving the non-verbal teaching skills of effective questioning.

This monograph seems to be a report of substantial revision of American course for self-instructional microteaching to a British version and of dissemination to other countries in the field of teacher education emphasizing much on in-service programmes. Leaving the other tangible aspects of symbolic and tutor modelling, supervision and feed back through other variables she has taken a self-instruction in the in-service programme. The twelve components of effective questioning skills having four broader objectives on "to encourage pupils' readiness to respond, to improve pupils' initial responses, to increase the level and amount of pupil participation and to eliminate habits, which disrupt the flow of discussion" have given an indication to other teaching skills of microteaching in the form of mini-courses adopted by Walter Borg. On the whole, she has taken a neglected aspect of teacher education, i. e. the in-service training through a systems approach, and her self-instructional course is an array to overcome the backdrops of the standards in teaching-learning situations in schools and also teachers' training institutions.

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Economics of University Finances

Economics of University Finances : Basic Principles and Practice

P. R. PANCHAMUKHI, Centre for Multi-Disciplinary Research, Karnatak
Historical Research Society, Dharwar, Karnataka, 1977, pp. xvi+238

+ Bibliography + Index (paper), Price Rs. 22.00

RESEARCH studies on economics of education in developing countries in general, and in India in particular, provide a strong case for reallocation of resources away from higher education. The extra-economic objectives like equalization of educational opportunities, universalization of elementary education, eradication of illiteracy, etc. also support such redistribution of resources in favour of lower levels of education. In this context it is of particular significance to make an indepth study of the financial aspects relating to higher education—particularly mobilization and utilization of the financial resources. One in the series of studies on the financial aspects of universities in India, sponsored by the Indian Council of Social Sciences Research, *Economics of University Finances : Basic Principles and Practice* is one such study referring to one of the oldest and reputed universities, viz. the Bombay University. The objectives of the present study were (i) to critically evaluate the use of scarce resources of the economy in higher education, (ii) to make an attempt at developing some general principles of resource mobilization and resource use in the 'non-profit' institutions of higher education, and (iii) to examine the working of the finances of the Bombay University. It was also attempted "to integrate some of the general ideas on the economic aspects of the university behaviour with the actual facts pertaining to the finances of the Bombay University".

The book contains three parts spread over in 13 chapters. Part I consisting of 8 chapters deals with the basic issues of mobilizing resources for the university education in India and the sources of finances for the Bombay University. The two chapters in Part II develop the general principles of resource use by the university, and Part III is concerned with the principles and major aspects of the financial soundness of the university.

While describing endowments as a source of finance, the author derives equilibrium conditions for the supply of donations considering the objectives of costs incurred and gains received by the donors and the demand conditions on the part of the university. In the light of these conditions an interesting analysis was carried of the endowments received by the Bombay University, which led the author to conclude that "while there is a large

and growing number of endowments for the university, the amount of unused balances of interest income is also substantially high indicating that the significant amount of resources remain idle with the university for one reason or other" (about 47 per cent of the interest income remained unused in 1970). The author suggests full utilization of surpluses in the developmental programmes as well as in investing them in higher return yielding activities, rather than investing merely in government securities which carry low rates of interest.

While discussing the principles of fee determination in the universities the author discusses profit-maximizing, marginal-cost, pricing principle, optimal output producing principle and under-optimal output producing cost-covering principles. But realizing the huge private as well as social benefits of education, he favours neither of them. Nevertheless, he argues for raising fees per student (which is really declining over time, e.g. it declined from 100 to 69 in the Department of Economics during 1956-57 to 1972-73) to such a level that it covers a major portion of costs. He further finds that subsidy, in turn, not only is increasing over time, but also the variation in it is very high between several departments (95 per cent of the total revenue expenditure per student in the Department of Marathi to 50 per cent in history).

A critical evaluation of the grants-in-aid policy was attempted in Chapters 4 and 5. The author outlined the principles of optimal grant-in-aid system that grant-in-aid should supplement the financial resources of the university, stimulate the financial efforts and equalize the financial strength of different universities. The author has several suggestions on the grant-in-aid policy. He suggests that instead of making several ad hoc grants, the state government should make two consolidated grants: one to the general fund and another to the departments; and the consolidated grants should be by and large based upon the current year's deficits on a hundred per cent basis. While the mechanics of grants-in-aid and their implications have been discussed, much has not been said about university autonomy in this context. However, he discussed this issue, though not extensively, in Chapter 11.

The first chapter in Part II analyses the university expenditures in the positive and normative framework. Some interesting findings he arrived at with respect to the Bombay University expenditures are as follows: The university expenditure increased by 35 times during 1925-26 to 1970-71. The non-service non-examination expenditures have increased by about 41 times during the same period. Secondly, the share of the academic staff in the total expenditure declined from 55 per cent to 40 per cent during 1947-48 to 1970-71, thus pushing up the share of the non-academic staff from

45 to 61 per cent of the total expenditure. Thirdly, the transfers of amounts from the university to the agencies of the government (in the form of taxes, electricity charge, postage, etc.) constitute 2-4 per cent of the total expenditure. Finally, the Bombay University, as far as student assistance policy is concerned, can be considered as conservative. The rate of growth of such expenditures is declining over time.

The other chapter titled 'Functional efficiency of the university' consists of an interesting production function analysis. Using pass percentage as the dependent variable a regression model was fitted and was found that enrolments, student-teacher ratio, number of books per student, per student academic expenditure and per student total expenditure explained about 60 per cent variation in the dependent variable. However, two important variables—students and student-teacher ratio—together could not explain more than 25 per cent of the variance. The regression analysis was, however, interesting. But the results of the component analysis which may provide deeper insight into the qualitative aspects were neither presented nor discussed in detail.

The general principles of autonomy, adequacy and built-in flexibility have been discussed in Part III apart from the over-all financial position of the Bombay University in Chapter 11 and a comparative analysis of the finances of the universities in Maharashtra in Chapter 12. The general conclusions are summarized in the last chapter along with limitations.

The book also contains a short bibliography on the subject and an index. *Economics of University Finances* is an excellent study in this area. This study surpasses the other studies on university finances in India in several ways. Many of the other studies were confined to a trend analysis of the university finances. On the other hand, the present study discusses in great detail the basic principles of the university finances in comparison with the principles of finances of profit-maximizing industries of the economy. And in the process a conceptual framework for the analysis of university finances has been evolved. In the light of this conceptual framework the huge data on financial condition of the Bombay University have been analysed. The economic analysis is, on the whole, excellent. The book forms an important textbook worthy of recommending for all the students of economics of education. Policy-makers and educational administrators will also receive valuable guidelines from this study on the financial aspects of the universities.

NATIONAL INSTITUTE OF EDUCATION

JANDHYALA B.G. TILAK
Institute of Economic Growth, Del

In Brief

Style Manual for Dissertations/Theses

DR. HARIBHAI G. DESAI. Saurashtra University, Rajkot 1979, pp. 99.

Price : Rs. 12.00.

WRITTEN to assist prospective research scholars Prof. Desai's work belongs to the category of class-notes. One wonders on what grounds the Registrar of the University has called this publication 'scholarly' or even 'valuable'. Perhaps the single criterion that UGC has supported its publication has tempted him to label it so. In the UK and the USA such publications are available in large numbers. Only in this country where research activity continues to be a mystery whose secret is accessible to a small coterie of 'dutiful' scholars, such a work could have merited a professor's pen. Preparing a presentable thesis is not an easy job and surely manuals are of no avail to the one on whom the insight into the dynamics of producing a standardized dissertation has not dawned. Had Prof. Desai spent his time on writing a Gujarati manual for researchers, surely one would have been grateful because in regional languages this type of material is urgently needed. For such a publication UGC's help would indeed have been welcome but not in English language wherein many a great scholars have already done a great job.



Mini-teaching—A New Experiment in Teacher Education

S. P. KULSHRESHTA. Division of Research, Department of Teacher Education, DAV College, Dehradun (U. P.), 1979, Pp. 24, Price : Rs. 5.00.

DEDICATED to Professors Buch and Passi and with a foreword by A. N. Bali the present small volume is claimed to be a research work. Dr. Kulshreshta acknowledges NCERT's assistance for conducting this piece

of research. One is, however, hard put to discovering any research design or the standard description of a research work. On the contrary, out of 20 pages of written material 16 are devoted to microteaching and its features. In the name of any research the researcher-scholar has only two models described. With apparently no discernible head or tail the publication leaves no meaningful impression except a couple of definitions which hopefully may mean to some audience something. "While presenting a glance (sic) at microteaching" the author takes pains to furnish a string of quotations regarding microteaching—which by now all of us know. Thereafter the author has the humility to acknowledge mini-teaching as a British innovation of Ulster College, Northern Ireland Polytechnic in 1976. Besides the Abohar model, the author describes his own model as an Indian adaptation and by implication an improvement over the British innovation.

Even if one agreed that Kulshreshta has done a pioneering work, should he not have concentrated on how he evolved his KGM model of mini-teaching. According to Kulshreshta he started his work in 1975 but waited until 1978 to discover that there was no practical difference between their microfined teaching approach and mini-teaching. Without going any further one would like to compliment Dr. Kulshreshta for such an important discovery and also the 'microfined' teaching with a pain-killing drug marketed internationally.

R. P. S. □

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